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CITY OF LA QUINTA

MASTER ENVIRONMENTAL ASSESSMENT

Prepared for

City of La Quinta
78-495 Calle Tampico
La Quinta, CA 92253

Prepared by

Terra Nova Planning & Research, Inc.
400 South Farrell, Suite B-205
Palm Springs, CA 92262

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Introduction

This Master Environmental Assessment is one of three components of the City of La Quinta General Plan. The Comprehensive General Plan Policy Document and the General Plan Environmental Impact Report complete the document. All three documents carry equal weight, and should be used together when considering development opportunities and constraints within the City.

The Master Environmental Assessment (MEA) provides three levels of information. First, it analyses the historic trends in the City for each Element of the General Plan. It also provides an inventory of current conditions within the City, and issues of concern, where appropriate. Finally, it provides analysis on the buildout of the General Plan in the City, and the broader Planning Area.

The Planning Area is composed of the City's legal sphere-of-influence, and two areas for potential future growth of the City: Planning Area #1 and Planning Area #2. These areas were considered in all analysis for this General Plan, but are currently not under the City's jurisdiction. Should annexation occur in the future, General Plan land use designations, policies and programs have already been carefully considered in the preparation of the General Plan documents.

Format and Content

The MEA contains six chapters, which parallel the Elements of the General Plan found in the Policy Document. These Elements are Land Use, Traffic and Circulation, Open Space, Public Services and Infrastructure, Natural Resources and Environmental Hazards. The Housing Element of the General Plan is provided under separate cover, and is a stand-alone document.

Land Use: The Land Use chapter provides information on current vacant and developed acreage within the City, and the potential numbers of dwelling units, commercial and industrial square footage and other land uses which could be constructed in the City and Planning Area at buildout.

Traffic and Circulation: The Traffic and Circulation chapter outlines current conditions in the City and Planning Area, and utilizing the General Plan Land Use designations, determines what improvements are needed to satisfactorily carry vehicular traffic through the City. In addition, this section addresses other types of transportation, including rail, air, and utility corridors.

Open Space: This Chapter addresses both natural and developed open space, including golf courses. Data is provided on passive and active open space opportunities, and potential areas for future development.

Public Services and Facilities: This Chapter brings together a number of important topics under one heading, including parks and recreation, fire and police protection, schools, water and sanitary sewer services, utilities and public services.

Natural Resources: The Natural Resources chapter includes biological and cultural resources, paleontologic resources, mineral resources, air quality and water resources.

Environmental Hazards: This Chapter includes geologic and seismic hazards, wind erosion, emergency preparedness, flooding and hydrology, hazardous materials, and noise.

All research for this document was conducted in 1999 and 2000. The MEA should be used as the basis for environmental analysis for future development projects. The statistical data provided should, however, be confirmed as time passes, in order to ensure that conditions have not changed.

1.0 Land Use

The Land Use Element provides a description and comprehensive plan of land uses throughout the City, its Sphere of Influence, Planning Area #1, and Planning Area #2. The element also describes the intensity of residential land use, and the ultimate number of housing units expected at build out of the General Plan. The Land Use Element identifies areas planned for commercial and industrial uses, and areas of existing and planned public and quasi-public uses. Of all sections of the General Plan, Land Use provides the broadest ranging discussion.

1.1Land Uses Categories

The Land Use Element and accompanying land use map describe and designate the distribution of land uses by type, location, intensity and/or extent of use. Uses include residential, commercial, industrial, open space, recreation, public buildings and facilities, and other categories of public and private land uses. Land use designations have been assigned to all lands within the City, its sphere, Planning Area #1, and Planning Area #2.

The land use designations included in this Element do not vary significantly from those in the City's 1992 General Plan. New designations have been developed and assigned to lands in the planning area for land uses which have not previously been needed in the City, such as "Industrial." Table 1.1 provides descriptions of the City's General Plan land use designations and Table 1.2 provides the statistical summary of these land uses, for the City, its sphere, Planning Area #1, and Planning Area #2.

Land Use categories within the planning area outside the City generally parallel the land use designation currently assigned by the County of Riverside. The City's underlying land use designation of low density residential in the southeastern planning area will allow higher densities than the agricultural designation in the County.

Table 1.1
City of La Quinta Draft General Plan
Proposed Land Use Designations

Land Use Designation (Density)	Purpose of Land Use
Residential Land Uses	
Very Low Density Residential, VLDR (Up to 2 dwelling units per acre)	This designation provides for large lot single family residential development at the southeastern boundary of the City. The designation provides a transition between agricultural lands residential uses. It encourages large lot subdivisions and equestrian uses, allowing for a progression of land uses.
Low Density Residential, LDR (Up to 4 dwelling units per acre)	This land use designation is the most prevalent in the City and the planning area. It supports the development of single family attached and detached development, both in a country club setting and in standard subdivisions. Equestrian uses may be appropriate on larger lots. The clustering of smaller housing units, including condominiums and townhomes, may be appropriate in this designation, with the provision of common area amenities and open space, when governed by a Specific Plan.
Medium Density Residential, MDR (Up to 8 dwelling units per acre)	This designation allows the development of single family attached and detached units on smaller lots. The Cove area of the City falls under this designation. The clustering of smaller housing units, including condominiums and townhomes, may be appropriate in this designation, as may be apartment and duplex units, with the provision of common area amenities and open space, when governed by a Specific Plan.
Medium-High Density Residential, MHDR (Up to 12 dwelling units per acre)	This designation is appropriate for both single and multiple family dwelling units, including attached and detached units on small lots, condominiums and townhomes, and apartments. The clustering of smaller housing units, including condominiums, townhomes and apartments, is appropriate in this designation, with the provision of common area amenities and open space. Mobile home parks or subdivisions with common area amenities and open space may also be allowed under this designation, with the approval of a Conditional Use Permit.

High Density Residential, HDR (Up to 16 dwelling units per acre)	This designation allows for attached single and multi-family dwellings. This designation is also most suitable for planned communities and affordable and senior housing where smaller units and higher densities may be appropriate. Duplex and multiplex development is the most common. Mobile home parks or subdivisions with common area amenities and open space may also be allowed under this designation, with the approval of a Conditional Use Permit .
Agricultural Overlay	This overlay has been applied to underlying residential designations in the southeastern planning area. It recognizes the importance of the agricultural community in this part of the Coachella Valley, and demonstrates the City's commitment to maintaining existing agricultural land uses. Any agricultural land use within this overlay area shall be allowed to continue until such time as the land owner chooses to develop. Agricultural land uses within this overlay area are never to be considered non-conforming land uses.

Commercial Land Uses

Mixed Regional Commercial (M/RC)	This land use designation supports major commercial land uses along the Highway 111 corridor, on parcels of 20 acres or more. These land uses serve not only the City, but neighboring jurisdictions as well. Land uses typical of this designation include corporate offices, non-laboratory research and development facilities, major department and specialty stores, supermarkets and drug stores, medical offices, hospitals and clinics, hotels and motels, automobile sales and commercial recreational and entertainment facilities. Smaller commercial retail facilities which support and are complementary to the primary land uses in this category are also permitted. These would include but not be limited to restaurants, services and some automobile service related land uses. High density residential land uses with an affordable housing component are permitted only if they are more than 600 feet south of Highway 111. A Specific Plan is required for all lands under this designation.

Community Commercial, CC

This designation provides for larger, community-scale shopping centers on parcels ranging from 20 to 30 acres in size, along major arterial roadways. These centers include large scale anchors as well as a variety of retail outlets and restaurant and entertainment uses to meet the needs of multiple neighborhoods. Other typical land uses include general merchandise, hardware, food and drug stores, offices and personal services. Hotels and motels may also be appropriate within this designation.

Neighborhood Commercial, NC

This designation supports the development of commercial land uses which serve the daily needs of the adjacent neighborhood on parcels of 10 to 20 acres. Typical land uses include food and drug stores, personal services, small restaurants, and financial institutions. This designation generally occurs at arterial and major arterial intersections.

Commercial Park, CP

The typical land uses under this designation are office and light industrial: warehousing and storage, office/warehouse combined uses, high technology light manufacturing and automobile repair.

Office, O

This designation allows for the development of professional and general offices, including financial, medical and legal offices. Retail commercial uses which support these offices may also be appropriate under this designation, but shall not be the principal use.

Resort Mixed Use, RMU

This land use designation is intended for projects which propose a wide range of potential land uses. A minimum of 20 acres is required for any project in this land use designation. Single and multi-family residential units, and condominium development are permitted in this designation, as are golf courses, and land uses permitted in the Tourist Commercial designation. Timeshares, recreational vehicle parks and resorts and mobile home parks and subdivisions may be permitted with a Specific Plan.

Tourist Commercial, TC

Uses allowed under this designation are limited to resort hotels, tourist commercial and recreational land uses, such as destination hotels, conference centers and hotels, restaurants and ancillary retail land uses. Time share projects may also be appropriate under this designation with the approval of a Conditional Use Permit. A Specific Plan is required in the Tourist Commercial designation.

Village Commercial, VC	The intent of this designation is to provide for hotel and resort uses, and pedestrian oriented retail stores, which help create a village atmosphere. Typical specialty land uses include art galleries, restaurants and cafes, hotels, apparel and jewelry stores and services. Medium High Density and High Density residential land uses may also be appropriate under this designation.

Other Land Uses

Industrial/Light Manufacturing, I	This land use designation is applied to lands in the planning area. It provides for business parks and the development of non-polluting industrial uses operating entirely in enclosed buildings, and those requiring limited and screened outdoor storage. Examples include clean manufacturing operations, aircraft or airport related uses, warehousing and distribution facilities, mini-warehouse storage, and a variety of light manufacturing businesses. Siting industrial lands in close proximity to major regional highway and railroad facilities is also desirable. Preferred development includes master planned business and industrial parks with integrated access and internal circulation. Ancillary or related commercial land uses may also be appropriate. With the approval of a Conditional Use Permit, more intense industrial uses with the potential to generate substantial levels of noise smoke, dust, glare, traffic vibration or other nuisance may also be allowed. These uses would include the manufacturing of durable goods such as appliances, furniture, fabricated metal products, and transportation equipment. All projects proposed within this designation must mitigate any adverse environmental impacts to acceptable or insignificant levels and be compatible with existing and planned land uses. A Specific Plan is required under this designation.
Major Community Facilities, MC	This designation is applied to existing or planned municipal, educational or public service facilities. Typical land uses within this designation include civic centers and other governmental offices, fire stations, schools and utility substations.
Park, P	This designation is applied to municipal and regional park facilities.

Floating Park Designation, P	In Planning Area #2, this floating designation is not assigned to a specific parcel, but indicates that a park or parks will be located in the general area in the future.
Open Space, OS	This designation applies to lands in public or quasi-public ownership in the hillside and mountainous areas of the City and planning area. The designation allows the discretionary approval of trails, trailheads, and similar facilities.
Hillside Overlay	This overlay is applied to lands above the toe of slope. The provisions of the Hillside Preservation Ordinance shall apply.
Golf Course, G	Public and private golf courses, and associated ancillary facilities.
Watercourse/Flood Control, W	Floodways and drainage channels.

Table 1.2
Statistical Summary of Land Uses

	City Limits			Sphere of Influence			P1			P2			
General Plan Designations	Developed	Un-developed	City Limits Total	Developed	Un-developed	Sphere of Influence Total	Developed	Un-developed	P1 Total	Developed	Un-developed	P2 Total	Grand Total
VLDR Very Low Density up to 2	261	198.2	459.2				0		0	64.4		64.4	523.6
LDR Low Density up to 4 du/ac	3,202.50	3,096.90	6,299.40	549.5	286.5	836	2,447.20	551.2	2,998.40	5,213.60	846.8	6,060.30	16,194.10
MDR Medium Density up to 8 d	1,063.90	324.2	1,388.10	171.7	66.2	237.9	58.2	62.7	120.8	358.8	100.5	459.3	2,206.10
MHDR Medium-High Density up	14.5	69	83.4			0	259.7	78.9	338.6				422
HDR High Density up to 16 du/a	0.6	86.7	87.3							93.7	71.4	165.1	252.4
Total Residential Acreage	**4,542.40**	**3,775.00**	**8,317.50**	**721.3**	**352.7**	**1,073.90**	**2,765.00**	**692.7**	**3,457.80**	**5,730.40**	**1,018.70**	**6,749.10**	**19,598.20**
M/RC Mixed Commercial	87.9	309	397	4.5		4.5	0			69.3	14.3	83.6	485
CC Community Commercial	24.2	93.7	117.9				7.2	2.9	10	219.7	33.1	252.8	380.7
NC Neighborhood Commercial	61.8	50.8	112.5				47.2	2.5	49.7				162.2
CP Commercial Park		64	64										64
O Office		39.9	39.9							43.7		43.7	83.6
TC Tourist Commercial	206.2	145.3	351.5										351.5
VC Village Commercial	64.4	68.8	133.2										133.2
Total Commercial Acreage	**444.5**	**771.5**	**1,216.00**	**4.5**	**0**	**4.5**	**54.4**	**5.3**	**59.7**	**332.7**	**47.3**	**380.1**	**1,660.20**
I Industrial										319.7	60.6	380.3	380.3
MC Major Community Facilities	178.3	13.1	191.3	2		2	29		29		36.7	36.7	259
P Park Facilities	601.3	128	729.3										729.3
OS Open Space	1,246.20	4,258.70	5,505.00					44.5	44.5	496.2	149.4	645.6	6,195.10
G Golf Course Open Space	3,125.30	986.7	4,111.90	229.8	88	317.8	198.8	59.8	258.6				4,688.30
W Watercourse/Flood Control	468.9	132.8	601.7										601.7
Total Other Acreage	5,619.90	5,519.30	11,139.20	231.8	88	319.8	227.8	104.3	332.1	815.9	246.6	1,062.50	12,853.60
Grand Total	10,606.70	10,065.80	20,672.60	957.6	440.7	1,398.30	3,047.30	802.3	3,849.50	6,879.00	1,312.70	8,191.70	34,112.00
Total Acreage	10,606.7	10,065.8	20,672.6	957.6	440.7	1,398.3	3,047.3	802.3	3,849.5	6,879.0	1,312.7	8,191.7	34,112.0

The Land Use Map provides for 58% of all lands, both in the City and planning area, for residential land uses, 5% for commercial, and 37% for all other lands, including parks and open space. This land use distribution is typical of most communities in the Coachella Valley, and supports the primarily residential character of the City.

1.2Residential Land Uses

The City of La Quinta is primarily a resort residential community.There are approximately 13,131 existing dwelling units in the General Plan planning area, including 12,141 in the City, 236 in the sphere-of-influence, 174 in Planning Area #1, and 580 in Planning Area #2. The 2000 population is approximately 27,936 permanent residents, including 23,694 in the City, 692 in the sphere-of-influence, 839 in Planning Area #1, and 2,711 in Planning Area #2. According to the 2000 U.S. Census, the average household size is 2.80 persons per household.

Table 1.3
Existing (2000) Conditions in the Planning Area

Area	Single-Family Units	Multi-Family Units	Total Units	Population
City	11,197	944	12,141	23,694
Sphere	138	98	236	692
Planning Area #1	115	59	174	839
Planning Area #2	396	184	580	2,711
TOTAL	**11,846**	**1,285**	**13,131**	**27,936**

Source: City data from California Department of Finance and U.S. Census, 2000.
All other data from Claritas, 2001 estimates.

1.2.1Specific Plans

Residential golf course communities and tourist commercial development in the City have traditionally occurred through a number of major Specific Plans. These projects provide their residents with common open space, lower overall density, and contribute significantly to the City's resort residential character. The City's major Specific Plans are described below, and are listed in alphabetical order.

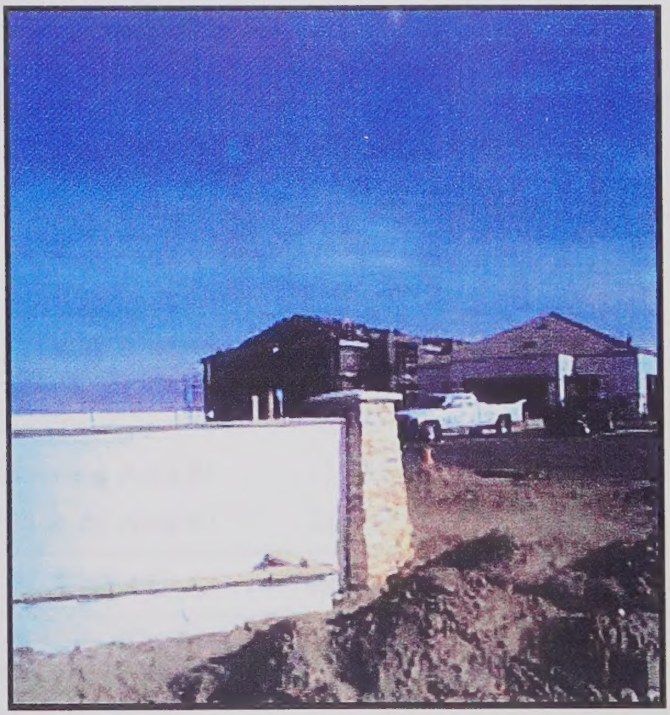
Country Club of the Desert Specific Plan: This Specific Plan includes tourist commercial, 402 acres of low density residential development, and 525 acres of golf course.

Duna La Quinta Specific Plan (SP 83-001, 94-024): Up to 860 dwelling units are permitted on 180 acres at the southwest corner of 50th Avenue and Washington Street.

The Green Specific Plan (SP 94-025): 277 dwelling units on approximately 331 acres, at the northwest corner of 60th Avenue and Jefferson Street.

The Grove (SP 90-016): The Plan allows 1,208 dwelling units and 21 acres of commercial development on 327 acres on the east side of Jefferson Street, north of 52nd Avenue.

PGA West Specific Plan (SP 83-002): The project area totals 1,685 acres, and allows 3,968 dwelling units, 1,000 tourist commercial condominium units, and four gold courses. The project is located on the west and east sides of Madison Street, between 54th and 58th Avenue.



Rancho La Quinta Specific Plan (SP 94-004): This project totals 718 acres, and allows 1,300 dwelling units, 10 acres of tourist commercial development, and 315 acres of golf course south of the 48th Avenue alignment, adjacent to the La Quinta Hotel, between Washington Street and Jefferson Street.

The Retreat at the Quarry (SP 98-032): Allows 28 resort residential units on 7.36 acres at the northeastern corner of The Quarry Specific Plan.

Santa Rosa Cove Specific Plan (SP 121-E): 1,011 dwelling units and 185 acre golf course south of the 48th Avenue, west of Eisenhower Drive.

Specific Plan 90-015: 1,060 dwelling units and golf course development are permitted on 265 acres.

Specific Plan 90-017: Golf course and 880 dwelling units on approximately 220 acres at Madison Street and 58th Avenue.

Travertine Specific Plan (SP 94-026): 909.2 acre project including 2,300 dwelling units, golf course, 10 acres of commercial, and a 27 acre hotel site for up to 400 rooms, located between 60th and 64th, and between Jefferson Street and Madison (extended).

Finally, two approved Specific Plans occur in the planning area:

Coral Mountain Specific Plan: Located on 1,280 acres south of Avenue 58 and west of Jackson Street, the project proposes a total of 3,500 residential units, ranging in density from 2 to more than 12 units per acre. Two golf courses, 9 acres of commercial, an elementary school, parks and community facilities are also proposed.

Kohl Ranch Specific Plan: Proposes 7,200 dwelling units, 350 acres of industrial land use, 157 acres of regional commercial, 62 acres of community facilities are also proposed.

1.2.2 Seasonal Community

The City experiences a residential vacancy rate of approximately 38.83 percent, due primarily to the second home ownership prevalent in many of the City's golf club communities. The City's population increases significantly during the winter season, when second home owners travel to the desert. The City has, and will continue to provide for the residential needs of both its permanent and seasonal population.

Buildout Dwelling Units and Population

The General Plan designates approximately 5,839 vacant acres for future residential development. Analysis of existing residential development patterns in the City and the broader Coachella Valley indicates that residential development does not typically occur at the maximum permitted densities, but occurs at lower densities. Assuming future residential development will occur at 75% of the maximum densities permitted, buildout of the General Plan planning area could result in the development of up to 47,031 new dwelling units. This includes 13,195 new units in the City, 1,257 in the sphere-of-influence, 11,764 in Planning Area #1, and 21,113 in Planning Area #2. At a rate of 2.80 persons per household (U.S. Census, 2000), these dwelling units would accommodate a total of 132,521 new residents, including 36,945 new residents in the City, 3,519 in the sphere, 32,940 in Planning Area #1, and 59,117 in Planning Area #2.

When future (described above) and existing (described previously in Table 1.3) conditions are combined, General Plan buildout could result in a total of 60,460 dwelling units and 160,457 residents in the General Planning area.

Table 1.4
Anticipated Buildout Conditions in the Planning Area

Area	Buildout Dwelling Units*	Buildout Population
City	25,336	60,639
Sphere	1,493	4,211
Planning Area #1	11,938	33,779
Planning Area #2	21,693	61,828
TOTAL	**60,460**	**160,457**

*Assumes 90% of land in agriculture redeveloped to single family residential. Assumes future residential development occurs at 75% of the maximum permitted densities.

1.3 Commercial Land Uses

The General Plan recognizes existing commercial land uses, as well as vacant lands appropriate for future development. The Plan provides seven commercial land use designations allowing the full range of retail and office commercial development as well as resort hotels.

La Quinta's targets for commercial development occur in two areas: the first and most significant along the Highway 111 corridor; and the second in the Village, the traditional downtown of the City.

Regional Commercial opportunities are expected to continue to be concentrated along the Highway 111 corridor. Large scale retail commercial, conference or business hotels and associated uses are expected to continue to develop in this area. This is reflected in the Land Use Map, which preserves this important regional market area for the future.

The Community Commercial land use designation provides for a smaller scale than the Regional Commercial designation, but still allows the development of large-scale projects which encourage development of smaller department stores and similar regional retail opportunities. These land uses are planned for the City's major arterials, and are concentrated near the Highway 111 corridor.

The General Plan Land Use Map has considered the long term needs of the City's residents, and has established Neighborhood Commercial nodes at critical intersections throughout the City. These nodes are intended to facilitate convenience shopping, improve the variety of retail opportunities in the City, and ultimately shorten circulation patterns.

The Tourist Commercial land use designation occurs in several areas of the City, and is the core of the City's tourism industry. Generally, this land use designation occurs in or adjacent to country club development, so as to take advantage of golf course opportunities.

In the City's traditional core, at the base of the Cove, a specialized designation has been applied, called Village Commercial. This area is designated to preserve the unique character of the Village, and includes special standards and provisions.

1.3.1 Commercial Specific Planning

The City has approved a number of commercial Specific Plans, particularly on the Highway 111 corridor, which allow the development of major retail projects, including Home Depot, Walmart, Lowe's Home Improvement and the La Quinta Auto Center project. Smaller projects, including the La Quinta Court and Point Happy Specific Plans, located on the southeast and northwest corners of Highway 111 and Washington Street, and the La Quinta Corporate Center Specific Plan, on the north side of Highway 111 at Dune Palms, have been approved to facilitate mixed commercial development in this area. All future development along the Highway 111 corridor will require the preparation of Specific Plans, to ensure consistent, high quality development along this critical roadway.

1.3.2 Commercial Development Potential

The table below describes anticipated commercial development conditions in the planning area at buildout of the General Plan. Acreages are taken from Table 1.2. Square footage estimates are based on the assumption that buildout would result in 22% lot coverage. This means that 22% of each commercial acre would contain leasable building square footage, while the remainder of the site would accommodate ancillary facilities, such as parking spaces and loading areas.

The data indicate that, upon buildout of the General Plan, the planning area would contain approximately 15.9 million square feet of

commercial square footage. This includes approximately 11.7 million square feet in the City, 43,124 in the sphere-of-influence, 0.57 million in Planning Area #1, and 3.6 million in Planning Area #2. Development in all the commercial land use designations will provide continued strong economic growth potential, while allowing a wide range of consumer product choices.

Table 1.5
Commercial Development Potential
at General Plan Buildout

Area	Developed Acres	Vacant Acres	Total Acres	Existing Sq. Ft.	Potential Future Sq. Ft.	Total Buildout Sq. Ft.
City	444.5	771.5	1,216	4,259,732	7,393,439	11,653,171
Sphere	4.5	0.0	4.5	43,124	0	43,124
Planning Area #1	54.4	5.4	59.8	521,326	51,749	573,075
Planning Area #2	332.7	47.4	380.1	3,188,330	454,243	3,642,574
TOTAL	**836.1**	**824.3**	**1,660.4**	**8,012,512**	**7,899,431**	**15,911,944**

Note: Square footage estimates assume 22% lot coverage

1.4 Other Land Uses

1.4.1 Industrial Land Uses

The Land Use Element allows industrial land uses in Planning Area #2, primarily surrounding the Desert Resorts Regional Airport. These lands are best suited for this type of development, particularly due to their access to road, and air transportation. The sensitive nature of industrial development, including issues such as light and glare, traffic, noise and hazards, will require the development of Specific Plans, when these lands are under the City's jurisdiction. Of the 380.3 acres of industrially designated land available in the planning area, 60.6 acres are currently vacant. Assuming a 34% building coverage on all industrial lands, the City has a capacity for 5,632,395 square feet of industrial space at buildout of the General Plan.

A broad range of industrial development will be possible under this designation, with the development of zoning ordinance provisions for industrial lands. Standards and design guidelines for development will also be developed to help guide industrial development plans.

1.4.2 Major Community Facilities

The Major Community Facilities land use designation includes a broad range of uses, including the City's Civic Center complex, public utility substations, schools and similar facilities. This land use designation has been assigned only to existing facilities. General Plan amendments will be required should additional facilities be proposed.

There are 259 acres designated for Major Community Facilities in the General Plan. Careful planning for the expansion of services, including the provision of emergency services, is critical. As the service area for existing agencies expands, additional locations are likely to become necessary to adequately serve the community.

1.4.3 Open Space and Recreation

There are 12,214.4 acres of open space and recreation lands in the planning area, including 10,947.9 in the City; 317.8 in the sphere-of-influence; 303.1 in Planning Area #1; and 645.6 in Planning Area #2. This represents 36% of the total acreage available, and gives the City the opportunity to protect its natural environment, and provide recreational opportunities to its residents and visitors.

A number of land uses are described, including natural open space, which preserves the integrity and natural beauty of the City's mountains, and represents the largest block of open space and recreation lands in the City and its planning area. To more effectively protect these hillsides, the City has enacted both the Hillside Overlay of this General Plan, and the Hillside Preservation Ordinance, which provides for limited and careful development on any significant slope.

The Park designation has been applied to existing and proposed City and regional park lands, which provide active recreational opportunities, and relieve the built environment throughout the planning area. In addition, a floating park designation has been assigned to the southeastern planning area, to indicate that as development occurs, the City will need to consider the location of a park for this portion of the community. The location for such a park has not yet been determined.

The second largest block of open space and recreational lands is the Golf Course designation. The Land Use Map does not attempt to assign the Golf Course land use designation to lands in Planning Area #2, since development patterns there may vary, and should be determined through the planning process.

2.0 Traffic and Circulation

As one of the fastest growing communities in California, the level of vehicular traffic in La Quinta has steadily increased and challenges the City to balance the character and qualities of a destination resort community with the accessibility needs of the community's residents and visitors. Balancing these two potentially conflicting goals requires careful planning of the local and regional roadway networks.

The potential for delays and the risk of traffic accidents increases as the City's road system nears its capacity for handling traffic in a safe and efficient manner. The General Plan Circulation Element has been developed in order to preserve the City's unique character and quality of life, while providing the safest and most efficient roadway system possible.

The Circulation Element examines the City's current road system and operating conditions, and analyses future traffic impacts due to growth projected for the City and region. The Circulation Element and associated technical analysis provide an efficient, cost-effective and comprehensive transportation management strategy consistent with regional plans, local needs to maintain and improve mobility, and in a manner consistent with the goals, quality and character of the community.

2.1 Background

The evolution of local and regional traffic patterns and the current (2000) transportation system has occurred over many years, and extends back to the Bradshaw Trail, now part of the State Highway 111 corridor. Prior to the City's incorporation in May, 1982, development in the community was largely focused on the Cove area west of Washington, south of Eisenhower Boulevard. Since that time, numerous subdivisions, planned residential developments, and commercial districts have grown up in and to the east and southeast of the Cove neighborhood. Residential growth has also extended north of Highway 111. Long an essential intra-regional link, Highway 111 has also become an important commercial corridor for the City and the region.

An outgrowth of trends in both City and regional land use and development, the Circulation Element affects and is affected by a variety of community and environmental factors. The Circulation Element is directly related to most other General Plan Elements, including Land Use, Housing, Air Quality, Noise, Infrastructure and Public Services, and Environmental Conservation Elements. Existing and future types, intensities and extent of land uses in the City and the vicinity will predictably affect the types and volumes of traffic traveling the City and regional roads.

Specific implementation programs addressing existing traffic conditions in the General Plan study area are discussed in the Circulation Element. They are designed to preserve and optimize roadway capacity in the community. The California Government Code describes conditions and data to be researched, analysed and included within a General Plan Circulation Element. Government Code Section 65302(b) states that the General Plan shall include the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities.

Local planning agencies are required to coordinate Circulation Element provisions with the applicable regional transportation plan, as set forth in Government Code Sections 65103(f) and 65080. In the General Plan study area these regional agencies include the California Department of Transportation (CalTrans), the Coachella Valley Association of Governments (CVAG), the Southern California Association of Governments (SCAG) and the Sunline Transit Agency. In addition, federal and state transportation planning must be coordinated with local planning pursuant to Section 134, Title 23 of the U.S. Code and California Government Code Section 65080(a), respectively.

Air quality issues are also associated with growing traffic volumes and infrastructure demand, and require policies and strategic programs that monitor, analyze and protect the community from unacceptable levels of locally generated pollutants.

For the foreseeable future, auto and truck emissions will increase with expanding population, miles traveled and less efficient travel conditions. The maintenance of adequate traffic flows, the prevention of traffic congestion caused by

inadequate and/or failing roadways, and enhanced vehicle operating efficiencies will help preserve the air quality in the community.

The Circulation Element also serves as a comprehensive transportation management strategy, which is based upon an analysis of existing conditions within the City and future development as set forth by the General Plan Land Use Map (see Land Use Element). Regional traffic growth has also been considered, and has been based upon statistical trends, an assessment of long-term regional growth potential and the regional transportation model, CVATS, prepared by the Southern California Association of Governments (SCAG).

A variety of data were used to quantify and characterize existing traffic volumes and conditions along roadway links and at major intersections. In addition to traffic counts collected by the City, CVAG and CalTrans, additional sets of data were collected from project-specific studies and other sources to gauge existing conditions and provide a sound basis for projecting future traffic volumes. These various data are from the period of 1990 through 1999 and include mid-block roadway segments, as well as counts of intersection turning movements.

A traffic distribution process was utilized to analyze circulation and the effects of development on traffic. This process works directly with existing traffic volumes and existing street geometrics as its starting point. The term "geometrics" pertains to the dimensions and arrangements of the visible features of the roadway. These include pavement widths, lane configuration, barriers, slopes, drainage, interchanges, and other design features, which significantly affect roadway traffic operation, safety, and capacity.

2.1.1 Levels of Service

The available and utilized capacity of a roadway is typically characterized as "Level-of-Service". As gauged for mid-block travel, Level-of-Service (LOS) is a qualitative measure describing the efficiency of the flow of traffic. For intersections, the LOS is defined quantitatively, as the number of seconds the vehicle is delayed in passing through the intersection. LOS includes a range of alphabetical connotations "A" through "F", used to characterize roadway operating conditions. LOS A represents the best/free flow conditions and LOS F indicates the worst/system failure.

Mid-block Levels of Service are represented as volume to capacity ratios, or vehicle demand divided by roadway capacity. Therefore, as the ratio approaches 1.00 or maximum capacity, the roadway approaches LOS F. Added travel and turning lanes increase capacity, as do the inclusion of raised medians and restricted access on a roadway. Raised medians increase roadway capacity by reducing the number of vehicle conflict points, such as cross traffic movements, and improving traffic flows. Restricted access avoids loss of capacity caused by interruptions and disruptions to traffic flow resulting from vehicles coming onto or leaving the roadway.

The table below defines the various LOS classifications for roadway segments. Caution should be used in applying the letter (A through F) delineators to levels of service, which for roadway segments are qualitative rather than quantitative assessments of performance characteristics. While a helpful qualifier of roadway performance, volume to capacity ratios provides a better quantitative assessment of roadway operating conditions.

Table 2.1
Level Of Service Description
Mid-Link and Uninterrupted Flow

Level of Service (LOS)	Quality of Traffic Flow	Volume/Capacity Ratio
A	Free flowing, low volumes, high speed; speed not restricted by other vehicles in the traffic stream.	0.00 - 0.60
B	Operating speeds and maneuverability in the range of stable flow, but presence by other traffic begins to be noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver between traffic lanes.	0.61 - 0.70
C	Operating speeds and maneuverability significantly controlled by other traffic quality of operations but still within the range of stable flow.	0.71 - 0.80
D	Tolerable operating speeds, high traffic density but stable flows; often used as design standard in urban areas. At this level, speed and freedom to maneuver are severely restricted. Drivers experience general discomfort and inconvenience.	0.81 - 0.90
E	At or near maximum traffic volume a roadway can accommodate during peak traffic periods. Low speed but uniform traffic density. "Maximum Capacity". Highly susceptible to breakdowns in flow.	0.91 - 1.00
F	System failure duet to long queues of traffic, unstable flows, stoppages of long duration. Traffic volume and speed can drop to zero. Traffic volume will be less than the volume which occurs at Level of Service E.	Not Meaningful

Source: Highway Capacity Manual, Transportation Research Board - Special Report 209, National Academy of Science,Washington, D.C. 1997.

Intersections represent the most constrained portion of the roadway network. The Highway Capacity Manual expresses the Level of Service at an intersection in terms of delay or waiting time to get through the various intersection approaches. For signalized intersections, average total delay per vehicle is used to determine the LOS. Intersection LOS is defined quantitatively in the following table. A more detailed discussion of LOS values can be found in the General Plan Traffic Study in the Program EIR Technical Appendices.

Table 2.3 describes the various capacity values assigned for differing roadway sizes and levels of service. Capacity is generally defined as the number of vehicles that may pass over a section of roadway in a given time period under prevailing conditions. Capacities of roadways are most restricted by intersection design and operation, which are discussed further below. Typically, the PM peak hour (Monday - Friday) is the heaviest traffic flow of the business day. However, it should be noted that in the planning area the peak hour operations are spread across a greater time period.

Table 2.2
Level Of Service Descriptions
Signalized Intersections

Level of Service	Average Total Delay Per Vehicle (Seconds)
A	0 to 10.00
B	10.01 to 20.00
C	20.01 to 35.00
D	35.01 to 55.00
E	55.01 to 80.00
F	80.01 and up

Table 2.3
Level of Service Volume/Capacity Values
(Average Daily Trips - ADT)

Facility Type	A (60%)	B (70%)	C (80%)	D (90%)	E (100%)
2 Lane	9,600	11,200	12,800	14,400	16,000
2 Lane (w/Center Median)	14,400	16,800	19,200	21,600	24,000
4 Lane	19,200	22,400	25,600	28,800	32,000
4 Lane (w/Center Median)	24,000	27,000	30,000	33,000	36,000
6 Lane	28,800	33,600	38,400	43,200	48,000
6 Lane (w/Center Median)	36,000	40,400	45,000	49,500	54,000

Source: Western Coachella Valley Plan, EIR #193. Prepared by Riverside County Planning Department, April, 1985. Coachella Valley Association of Governments.

Acceptable Levels-of-Service
An essential goal of the Circulation Element is to establish and maintain acceptable levels of service on all community roadways. To this end, traffic engineers and transportation planners attempted to provide ideal roadway operating conditions while controlling the costs of infrastructure to assure those conditions. LOS C has long been considered the desirable and optimal level of traffic volume on any given roadway, however, it represents a standard that is progressively more difficult and costly to achieve in urban areas. For peak operating periods, LOS "D" and/or a maximum volume to capacity ratio of 0.90 is now considered the generally acceptable service level. Buildout of the City General Plan is not expected to result in any intersections operating at levels worse than LOS "D". In those temporary periods where a V/C ratio of 1.0 or worse exists along certain roadway segments, every measure to improve operating conditions shall be pursued.

2.1.2 Average Daily Traffic Volumes

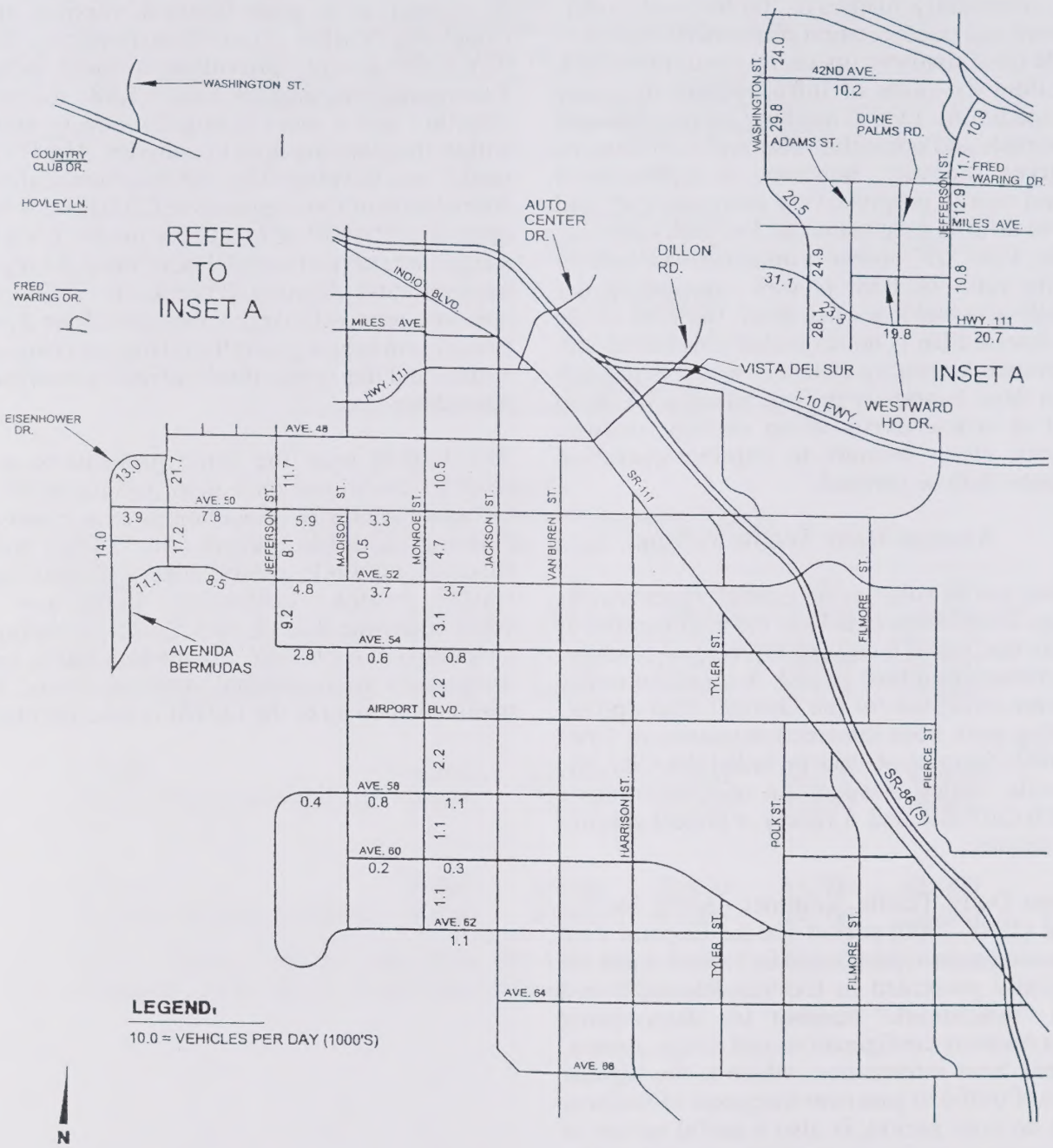
Roadway traffic volumes are generally presented as Average Daily Trips (ADT) or the total number of vehicles that travel a defined segment of roadway over a twenty-four hour period. A variety of traffic data were collected for the General Plan update, including peak hour intersection counts, in 1999 and 2000. Sources of data included the City, the Coachella Valley Association of Governments (CVAG) CalTrans, and a variety of project-specific traffic studies.

Average Daily Traffic Volumes (ADT) for the current (1998-2000) period for the General Plan designated roadways are listed in Table 2.4 and are graphically presented in Exhibit 2.1. ADT is a useful "benchmark" number for determining various roadway configurations and design aspects. The peak hour information, which is the highest volume of traffic to pass over a segment of roadway during an hour period, is also a useful means of determining a roadway's capacity and, indirectly, intersection levels of service. Traffic counts at intersections have provided a more detailed picture of present and future operating conditions at these intersections.

2.2 La Quinta Traffic Model

The La Quinta Traffic Model (LQTM) has been developed as a pure focused version of the Coachella Valley Area Transportation Study (CVATS) model, providing a more detailed Transportation Analysis Zone (TAZ, see below) structure and a more detailed roadway network within the planning area boundaries. The CVATS model was developed by the Southern California Association of Governments (SCAG) and is based upon the TRANPLAN software model. CVATS is a large area network model developed for regional transportation planning. It breaks the Valley study area into relatively large zones (see Zone System, below), and uses a generalized land use designation system and trip generation/distribution/assignment procedures.

The LQTM uses the same procedures as the CVATS model but on a more refined level. The General Plan traffic modeling process consists of defining the traffic analysis zones (TAZ) and the roadway network, establishing efficient/logical traffic routes, collecting land use and socio-economic data on each TAZ, calculating trip generation in each TAZ, distributing traffic and its assignment to individual road segments. Each major component of the LQTM is described below.



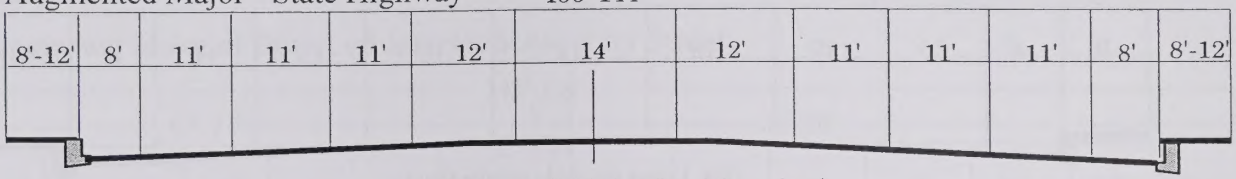
TERRA NOVA®
Planning & Research, Inc.

City of La Quinta
General Plan
Year 2000
Average Daily Traffic (ADT) Volumes

Exhibit

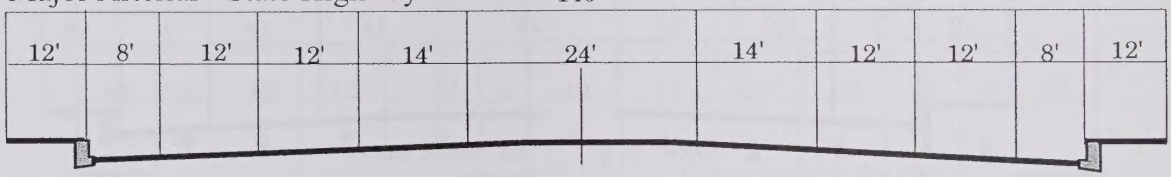
2.1

Augmented Major - State Highway 136'-144'



(Eight Lanes divided, w/breakdown lane)

Major Arterial - State Highway 140'



(Six Lanes divided, w/ bike lane)

TERRA NOVA®
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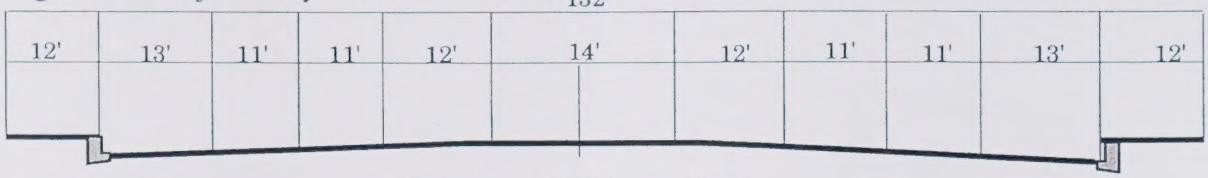
City of La Quinta
General Plan
Street Cross Sections - State Highways

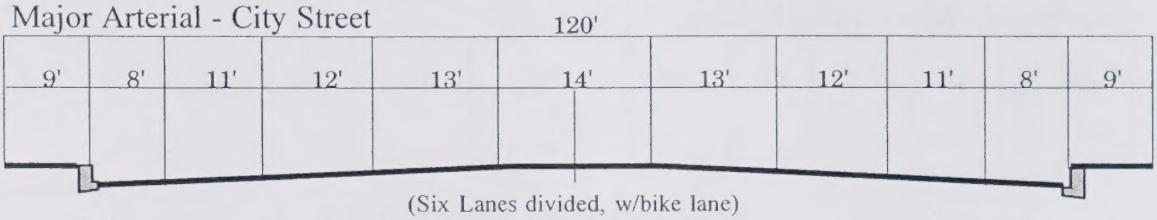
Exhibit
2.2

Augmented Major - City Street



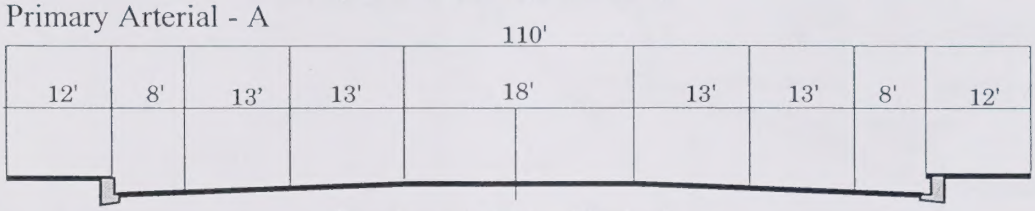
(Eight Lanes divided, no parking)

Major Arterial - City Street



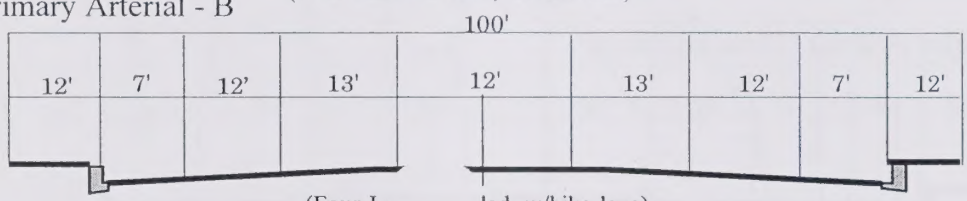
(Six Lanes divided, w/bike lane)

Primary Arterial - A



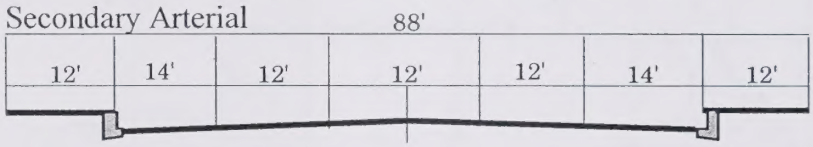
(Four Lanes divided, w/bike lane)

Primary Arterial - B



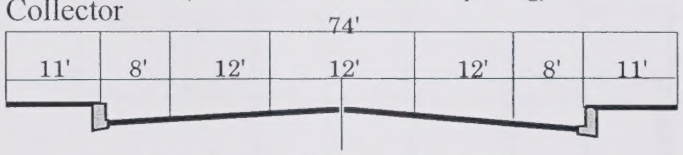
(Four L led, w/bike lane)

Secondary Arterial



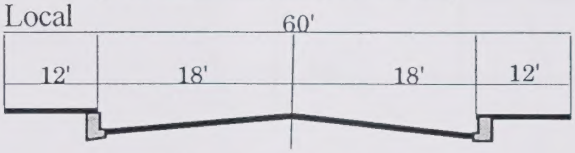
(Four Lanes undivided, no parking)

Collector



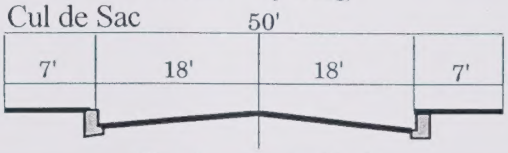
(Two Lanes undivided, w/bike lane)

Local



(Two Lanes w/parking)

Cul de Sac



(Two Lanes, w/parking)

TERRA NOVA®
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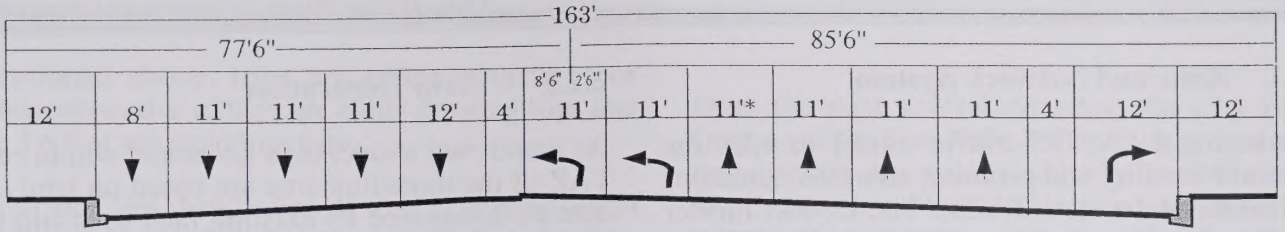
City of La Quinta
General Plan
Street Cross Sections - City Streets

Exhibit
2.3

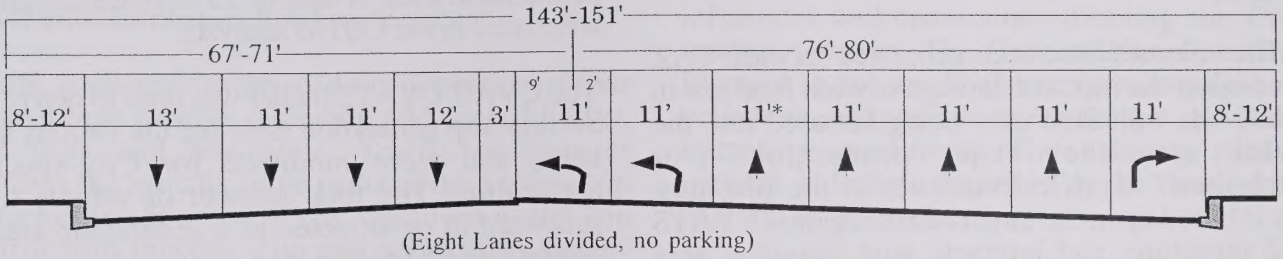
Augmented Major at Dual Left Intersections - State Highway



(Eight Lanes divided, w/breakdown lane)

*Through lane adjacent to turn lane is reduced 1 foot, but returns to standard width on far side of intersection adjacent to median nose.

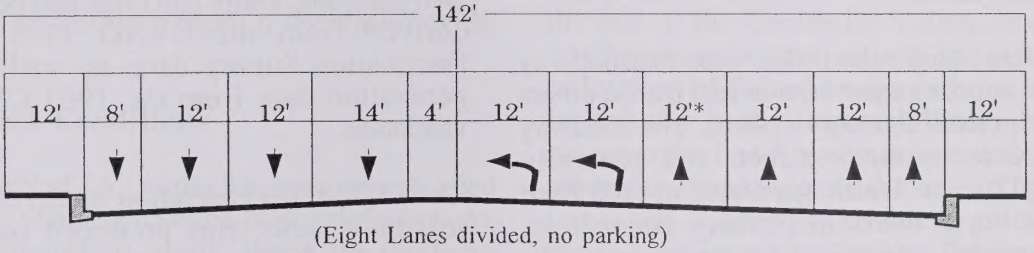
Augmented Major at Dual Left Intersections - City Street



(Eight Lanes divided, no parking)

*Through lane adjacent to turn lane is reduced 1 foot, but returns to standard width on far side of intersection adjacent to median nose.

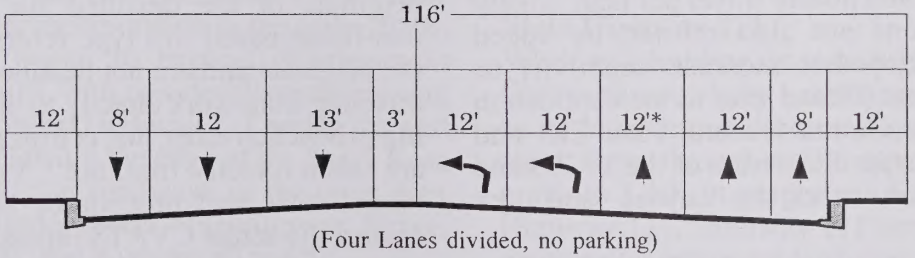
Major Arterial at Dual Left Intersections - State Highway



(Eight Lanes divided, no parking)

*Through lane adjacent to turn lane is reduced 2 foot, but returns to standard width on far side of intersection adjacent to median nose.

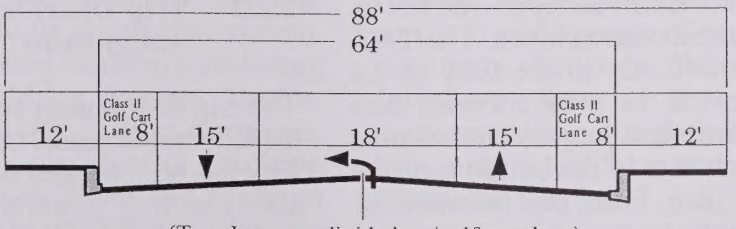
Primary Arterial A at Dual Left Intersections - City Street



(Four Lanes divided, no parking)

*Through lane adjacent to turn lane is reduced 1 foot, but returns to standard width on far side of intersection adjacent to median nose.

Modified Secondary at Single Left Intersections - City Street



(Two Lanes undivided, w/golf cart lane)

2.2.1 Zone and Network System

The regional CVATS traffic model divides the General Plan City and planning area into numerous traffic analysis zones (TAZs). The LQTM further divides the planning area into smaller TAZs, following CVATS zone boundaries, General Plan land use boundaries, digital street centerlines and other GIS data, thereby increasing the detail of the analysis.

Traffic volumes have been generated for each TAZ based upon the mix and acreage of each land use in each TAZ, with land uses being factored into the model as either trip "productions" or "attractions". Traffic from outside the planning area is based upon the larger scale, regional CVATS TAZ structure, and interacts with planning area traffic at various cordon stations located along planning area boundaries. A forecast of traffic volumes is produced by the model and is based upon the TAZ system.

The model then assigns the traffic onto the roadway network, and approximates how actual traffic enters and utilizes the local roadway system. The roadway network focuses on major streets and generally excludes local streets. Traffic generated in each zone is placed on the network at primary connectors, called "centroids", identified by the model. The model also considers a variety of roadway characteristics, including the type of roadway, free-flow speeds, and hourly travel per lane. Likely network operations are also refined by speed adjustments developed to increase sensitivity to roadway constraints (Please refer to the Circulation section of the La Quinta General Plan EIR and technical report for an illustration of the TAZ's and a complete breakdown of the various land uses within each TAZ).

The current (2000) land use patterns were used as the basis for the La Quinta General Plan TAZ system, and includes provisions for approved but as yet unbuilt master planned communities. The TAZ system is tailored specifically to the City of La Quinta in order to provide the most accurate data possible. The model distributes the projected volume of traffic that will occur due to the buildout of the General Plan land use plan. From this information the design requirements to maintain acceptable traffic flows have been determined.

2.2.2 Trip Generation

As mentioned above, trips generated within each TAZ of the modeling area are based on land use data as designated by existing land uses and the General Plan Land Use Element. The CVAG CVATS model breaks down land uses into 13 variables, ranging from very low density residential to commercial, industrial and institutional uses. A total of 20 land use categories were used in the LQTM analysis.

The CVAG CVATS model was used to derive the average trip generation rates per the various land uses, and were modified for City-specific application. The total number of vehicle trips produced in or attracted to a geographic area is directly related to the land use and demographic variables found in each TAZ. The model estimates the number of peak season vehicle trips that will be produced on an average weekday for each analysis zone. Daily trip rates and percentages are derived from the CVAG 1995 Origin and Destination Survey data, as well as from trip generation data from the 1997 CVATS model validation.

The LQTM trip generation model estimates peak season vehicle trips produced on an average weekday. Four separate "home-based" trip definitions and one "non-home-based" definition are used in the model. Home-based trips either originate or are destined for the home. The non-home-based trip type refers to trips that do not originate and are not destined for home (e.g., traveling from work directly to dinner). The actual trip production rates, that is trips per land use type, are taken directly from the CVATS model. The model rates and procedures have been tested against the actual CVATS inputs, indicating close correspondence between the two and validating the trip generation portion of the model.

2.2.3 Trip Distribution and Traffic Assignment

The trip distribution and assignment functions of the City traffic model can be implemented once the City has been broken down into the various TAZs and the trip generation for each has been calculated. This next step involves providing a general directional distribution of these trips and then finally assigning them to specific streets. As

mentioned above, trips are either attractions or productions; that is, they are either drawing trips into the TAZ or are exporting trips.

Typically, this distribution of trips is accomplished using a "gravity distribution model", based on the formula that the distribution of trips is proportional to the "attractiveness" of the land use and the distance (or travel time) from the point of trip production. Each type of trip has its own specific travel time distribution function or curve.

Traffic is assigned to the roadway network over four distinct time periods, including AM peak, Midday, PM peak and Nighttime. Traffic assignment involves the specific route paths of the various trip interchanges between TAZs identified in the trip distribution process. The end result forecasts of daily traffic volumes yield the aggregate assignment of trips to roadways between and connecting TAZs throughout the City. The traffic assignment process for the General Plan traffic model has also been adapted from procedures used in the valley-wide CVATS model.

2.3 Current Conditions

The community of La Quinta has seen an extended and somewhat unique evolution of development. As one of the important stops along the historic Bradshaw Trail, the La Quinta Cove (the "fifth" stop along the route to the gold fields to the east) provided shelter for the community's earliest development. After incorporation in the early 1980s, the community began to expand development beyond the cove area, with new development moving both northward toward Highway 111 and to the east and southeast, following the edge of the Santa Rosa Mountains. Backbone roadways in the cove area include Washington Street, Eisenhower Drive, Avenida Bermudas, and Avenues 50 and 52.

With the extension of its corporate limits north of Highway 111, the City has integrated this important intra-regional highway into its circulation system. Other major east-west trending roadways, including Fred Waring Drive and Miles Avenue, further enhance the movement of traffic in these directions. Important north-south connectors include Washington Street, Jefferson Street and Madison Street. Intervening roadways provide a regular grid street system primarily following section and mid-section lines.

Over the past several decades, the City of La Quinta and the Coachella Valley have grown into a largely continuous and relatively linear suburban development pattern, connected by state and interstate highways and a web of arterial roadways. The geography of the City and the Valley, the linear distribution of the communities, the existing development pattern in the City itself and the current road designs are the physical influences and constraints affecting the City's roadway system. The General Plan Circulation Element is the result of extensive baseline data collection, analysis of street design and current operating conditions. The existing roadway network is further described in the General Plan EIR and its Appendix.

2.3.1 Regional Roadways

State Highway 111 and U.S. Interstate-10 are the two primary regional routes connecting the City to the rest of the Coachella Valley. State Highway 111 begins at its juncture with Interstate-10 several miles west of Palm Springs and extends southeast to Brawley in the Imperial Valley. Interstate-10 connects the Los Angeles region with Arizona and other cities and states to the east. Together, these important roadways provide regional, interstate and international connections for the City and the Coachella Valley. Each of these regional facilities is briefly discussed below.

State Highway 111

While still holding its state highway status in La Quinta, this roadway has become more important as an intra-regional connector serving the local cities. Some through-traffic appears to have moved north to I-10, in response to congestion along Highway 111. Highway 111 serves a wide mix of commercial and resort land uses. In the City, most portions of this roadway have already been improved to its ultimate six-lanes divided design standard. Within the City, it is providing primary access to a wide range of commercial development occurring between Washington Street and Jefferson Street. This roadway is also accommodating a high volume of pass-through trips, originating from and destined for locations outside the City.

U.S. Interstate-10
In the vicinity of the General Plan planning area, Interstate-10 is currently built as a six-lane divided freeway accessed primarily from diamond intersections spaced a minimum of one mile apart. I-10 provides essential inter-city and inter-regional access and is also a critical part of the local road network moving people and goods into and out of the Valley. Access to I-10 is currently provided through the Washington Street and Jefferson Street interchanges.

2.3.2 Local Major Roadways

The City has developed and maintains an extensive arterial roadway network which, in addition to the regional facilities serving the community, also serves both intra- and inter-city traffic. The City road network has been built essentially along a north-south grid, with interconnections with major arterials passing through adjacent jurisdictions. The location of trip attractors along these roads or the convenience they provide in traversing through the City varies with each road.

2.4 General Plan Buildout

Analysis of current roadway conditions has been conducted in the General Plan planning area. As a direct result of the analysis conducted on existing traffic and roadway conditions, and on projections of future traffic resulting from General Plan buildout, a roadway classification system has been developed and assigned to existing and future roads. This process has also taken into consideration special issues of concern and opportunities to enhance community circulation. The following table lists these General Plan roadways and also provides the following information:

A. 1998 Average Daily Trips (ADT) and Volume to Capacity Ratios
B. General Plan Roadway Designation.
C. General Plan Buildout Average Daily Trips and Volume to Capacity ratios.

Table 2.4
General Plan Road Analysis

Roadway Link	1998 ADT	1998 V/C Ratio	Buildout General Plan Designation	Buildout ADT	Buildout V/C Ratio
Highway 111					
E. Of Washington Street	23,300	N/A	Major	61,288	1.08
W. Of Washington Street	25,501	N/A	Augmented Major	62,214	0.82
Adams to Dune Palms Road	25,000	N/A	Major	40,684	0.71
Dune Palms to Jefferson	25,000	N/A	Major	48,510	0.85
Washington Street					
I-10 to Country Club	23,390	N/A	Augmented Major	75,838	1.00
Country Club to Ave. 42	20,771	N/A	Major	52,745	0.93
Ave. 42 to Fred Waring Dr.	26,079	N/A	Major	54,929	0.96
Fred Waring to Miles Ave.	25,488	N/A	Major	68,392	1.20
Miles Ave. To Hwy. 111	24,897	N/A	Major	65,518	1.15
Hwy 111 to Ave. 48	28,094	N/A	Augmented Major	67,202	0.88
Ave. 48 to Eisenhower Dr.	22,744	N/A	Augmented Major	62,551	0.82
Eisenhower to Ave. 50	17,392	N/A	Major	53,233	0.93
Jefferson Street					
Country Club to Fred Waring	12,195	N/A	Major	37,650	0.66
Ave. 48 to Ave. 50	11,197	N/A	Major	47,324	0.83
Ave. 52 to Ave. 54	9,421	N/A	Major	47,199	0.83
Madison Street					
Hwy 111 to Ave. 48	6,664	N/A	Primary	35,802	0.94
Ave. 48 to Ave. 50	3,564	N/A	Primary	33,778	0.89
Ave. 50 to Ave. 52	464	N/A	Primary	28,211	0.74
Country Club Drive					
Oasis Club to Washington	17,741	N/A	Primary	39,238	1.03
Ave. 42 to Jefferson St.	N/A	N/A	Primary	32,979	0.87
Fred Waring Drive					
Eldorado to Washington	20,876	N/A	Major	58,172	1.02
Washington to Adams	17,651	--	Primary	32,566	0.86
Adams to Dune Palms	15,087	--	Primary	32,914	0.87
Dune Palms to Jefferson	15,087	N/A	Primary	31,198	0.82
Miles Avenue					
Hwy. 111 to Washington	3,800	N/A	Primary	11,012	0.29
Washington to Adams	4,745	N/A	Primary	18,633	0.49

Avenue 48					
Washington to Adams	2,066	N/A	Primary	11,972	0.32
Adams to Dune Palms	5,018	N/A	Primary	26,262	0.69
Dune Palms to Jefferson	5,018	N/A	Primary	35,778	0.94
Van Buren to Hwy. 111	5,964	N/A	Primary	35,140	0.92
Avenue 50					
Eisenhower Dr. To Washington	1,910	N/A	Primary	29,360	0.77
Washington to Jefferson	7,837	N/A	Primary	27,198	0.72

N/A = data not available Source: RKJK Associates

2.4.1 Intersections: Arbiters of Capacity

The capacities of the various roadway segments within the General Plan planning area are defined by a variety of variables, including the number of travel lanes, the number of access points onto the roadway, and the roadway geometry, i.e. is it divided or undivided, the width of travel lanes, and other constraints. However, the most constraining and defining portions of the roadway network are intersections, which are typically the ultimate arbiters of capacity. Detailed analysis and recommendations regarding intersection improvements are generally outside the realm of the General Plan, however, analysis of several key intersections provide important perspective on the constraints expected at these locations.

As part of the General Plan update analysis, twenty intersections were evaluated to establish the projected average total delay per vehicle and the anticipated levels of service for each intersection during AM and PM peak hours. Table 4-4 in the General Plan Traffic Report found in the General Plan EIR Technical Appendices also sets forth the intersection geometries that must ultimately be constructed at each location.

Currently (2000), all of these intersections are operating at acceptable levels of service. As shown below, each of the fifteen intersections are projected to operate at LOS "D" or better in the buildout (Post 2020) condition. These levels of service assume optimized signal timing and provide appropriate time for pedestrian crossings.

Table 2.5
Intersection Analysis for the General Plan Buildout

Intersection	Traffic Control[2]	Average Delay[1] (Seconds) AM	PM	Level of Service AM	PM
Washington St. (NS) at:					
Country Club Dr. (EW)	TS	48.7	49.4	D	D
Hovley Ln (EW)	TS	34.9	51.2	D	D
Fred Waring Dr. (EW)	TS	49.5	46.8	D	D
Miles Ave. (EW)	TS	45.2	50.7	D	D
SR-111 (EW)	TS	41.3	48.6	D	D
Eisenhower Dr. (EW)	TS	49.6	51.0	D	D
Ave. 50 (EW)	TS	42.4	47.3	D	D
Jefferson St. (NS) at:					
Country Club Dr. (EW)	TS	50.5	45.7	D	D
Fred Waring Drive (EW)	TS	30.6	49.5	C	D
Miles Ave (EW)	TS	27.2	43.7	C	D
SR-111 (EW)	TS	28.3	36.2	C	D
Ave. 48 (EW)	TS	46.7	44.1	D	D
Ave. 50 (EW)	TS	30.5	42.7	C	D
Ave. 52 (EW)	R	--	--	--	--
Madison St. (NS) at:					
Ave. 50 (EW)	TS	40.1	49.8	D	D
Ave. 52 (EW)	TS	38.5	45.2	D	D
Jackson St. (NS) at:					
Airport Blvd. (EW)	TS	46.6	50.9	D	D
Harrison St. (NS) at:					
Airport Blvd. (EW)	TS	39.8	38.6	D	D
SR-111 (NS at:					
Airport Blvd. (EW)	TS	45.9	49.0	D	D
Ave. 62 (EW)	TS	50.3	46.4	D	D

[1] Source: Dowling Associates, Traffix Version 7.10607 (1999).
[2] TS=Traffic Signal, R=Roundabout

2.4.2 The Roundabout Intersection

The City has instituted the Roundabout intersection design for use at the Jefferson Street and Avenue 52 intersection. While common in other countries, the roundabout is relatively new to much of this country. The roundabout avoids the need for signalization and delays associated with signal "red time". Drivers are faced with only one direction of opposing traffic and are helped by slower travel speeds through the intersection. Roundabouts also have a proven lower potential for severe accidents.

2.4.3 Traffic Calming

The City encourages the use of traffic calming devices within new subdivisions. The implementation of such devices helps maintain low speeds, and promotes traffic safety in new neighborhoods.

In residential neighborhoods, traffic calming can increase safety and the quality of streetscapes, and limit through traffic or "short cuts." In order to be properly implemented, the City's design standards, and the access concerns of emergency vehicles must be addressed.

Traffic calming devices can include curvilinear streets, speed humps and raised intersections, traffic circles, chicanes, roundabouts, stop signs on through streets, and narrowed intersections. All these modifications to local roadways have the ultimate effect of slowing traffic, generally to about 30 miles per hour, and improving the living conditions within a neighborhood. The restriction or blocking of turning movements can also be used effectively in traffic calming, particularly to reduce cut-through traffic in neighborhoods. New projects should consider such design features when in the design phase.

2.4.4 Image Corridors

The City has implemented image corridor designations on major City streets to assure that the quality of the streetscape is maintained and improved as development occurs. Standards are found in the Development Code.

Each Image Corridor designation is briefly described below. Image Corridor streets are depicted in Exhibit 2.5.

Primary Image Corridors: These streets are considered major design statements in the City, and will include landscaped medians, heavily landscaped parkways adjacent to the roadway and within the right-of-way, and landscaped setbacks for buildings located next to the right-of-way. The following streets are designated Primary Image Corridors:

- Highway 111
- Washington Street
- Jefferson Street
- Fred Waring Drive
- Calle Tampico
- Eisenhower Drive, from Calle Tampico to Washington Street

Within the Primary Image Corridor category, the City has further implemented special design standards for the Highway 111 corridor. All development located on Highway 111 must conform to these standards.

Secondary Image Corridors: These streets represent the second most important design statements for travelers within the City. Secondary Image Corridors will be designed to include raised landscaped medians, landscaped parkways within the public right-of-way, and landscaped setbacks adjacent to the right-of-way. Secondary Image Corridors include:

- Miles Avenue
- Dune Palms Road, south of the Coachella Valley Stormwater Channel
- Adams Street, south of the Coachella Valley Stormwater Channel

- Avenues 48, 50 and 52
- Eisenhower Drive, south of Calle Tampico to Avenida Bermudas

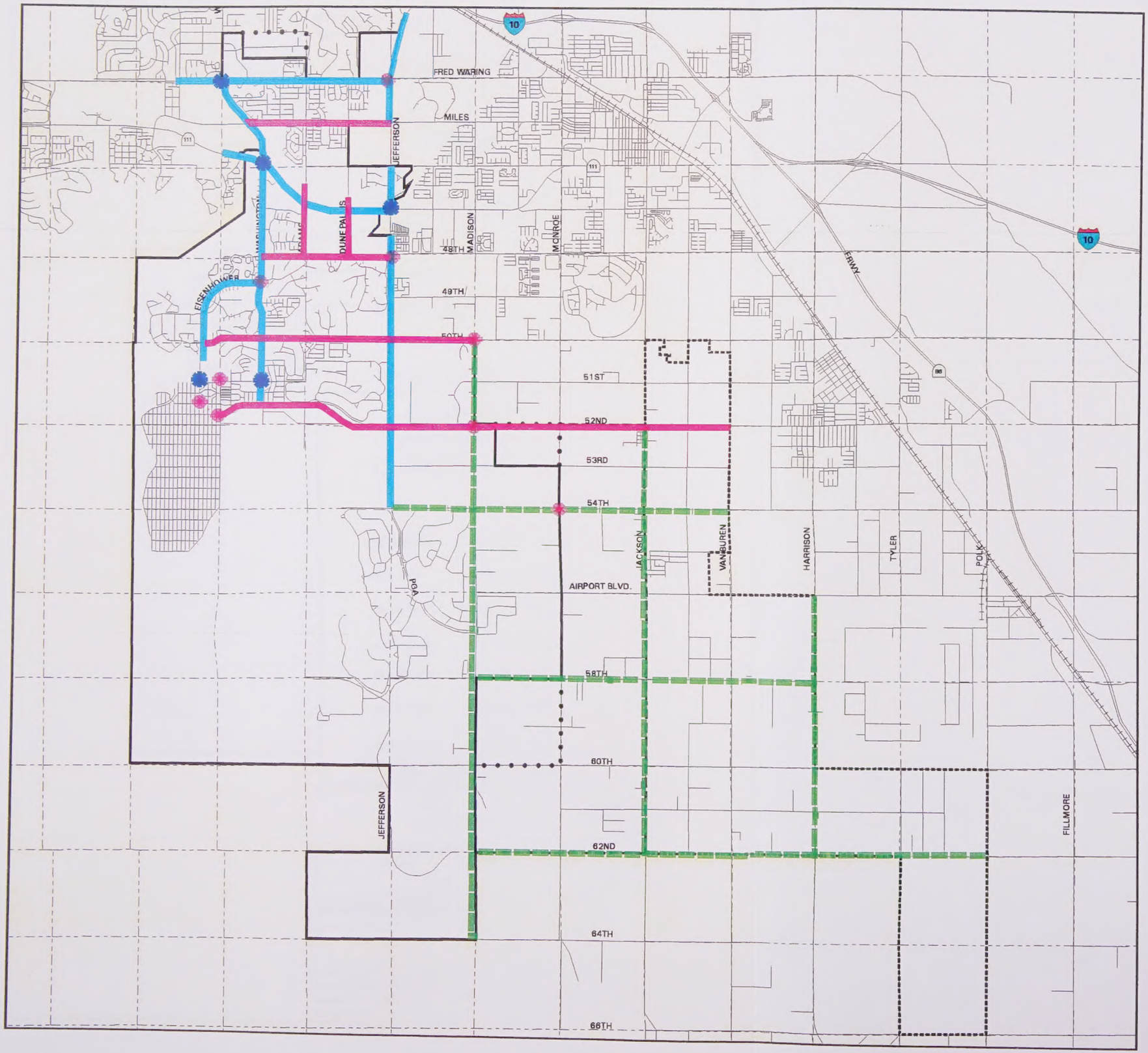
Agrarian Image Corridors: Those streets which occur in areas of low density development, and which reflect the agrarian past of the region have been designated Agrarian Image Corridors. These streets will feature equestrian facilities, low canopy and citrus trees, and street furniture which reflects a rural character. The intersections of agrarian image corridors should be highlighted by citrus trees. Agrarian Image Corridors include:

- Madison Street
- Jackson Street
- Harrison Street
- Avenues 54, 58, 62 and 66

2.5 General Plan Roadway Classifications

Each major roadway in the planning area has been assigned a specific design classification based upon existing and projected traffic demands generated by buildout of the General Plan. The need for and appropriateness of each classification has been based upon modeled future traffic volumes and overall community design goals set forth in the General Plan. Each of the classifications correspond to the street cross sections illustrated in Exhibit 2.2. Certain refinements may be required when securing right-of-way and constructing improvements at specific locations.

City of La Quinta General Plan



LEGEND

- Roads
- Township/Range Sections
- Railroads
- City Limits
- Planning Area #1
- Planning Area #2
- City Sphere of Influence

EXHIBIT 2.5
IMAGE CORRIDORS

- Primary Image Corridor
- Secondary Image Corridor
- Agrarian Image Corridor
- Primary Gateway Treatment
- Secondary Gateway Treatment

Source: City of La Quinta General Plan
June, 1992

Scale
1:72,000

0 5,000 10,000 15,000
Feet

N
NORTH

Riverside County Vicinity Map

Map Prepared on: December 14, 2001
Map Prepared by: Aerial Information Systems
Map Version No.: 6

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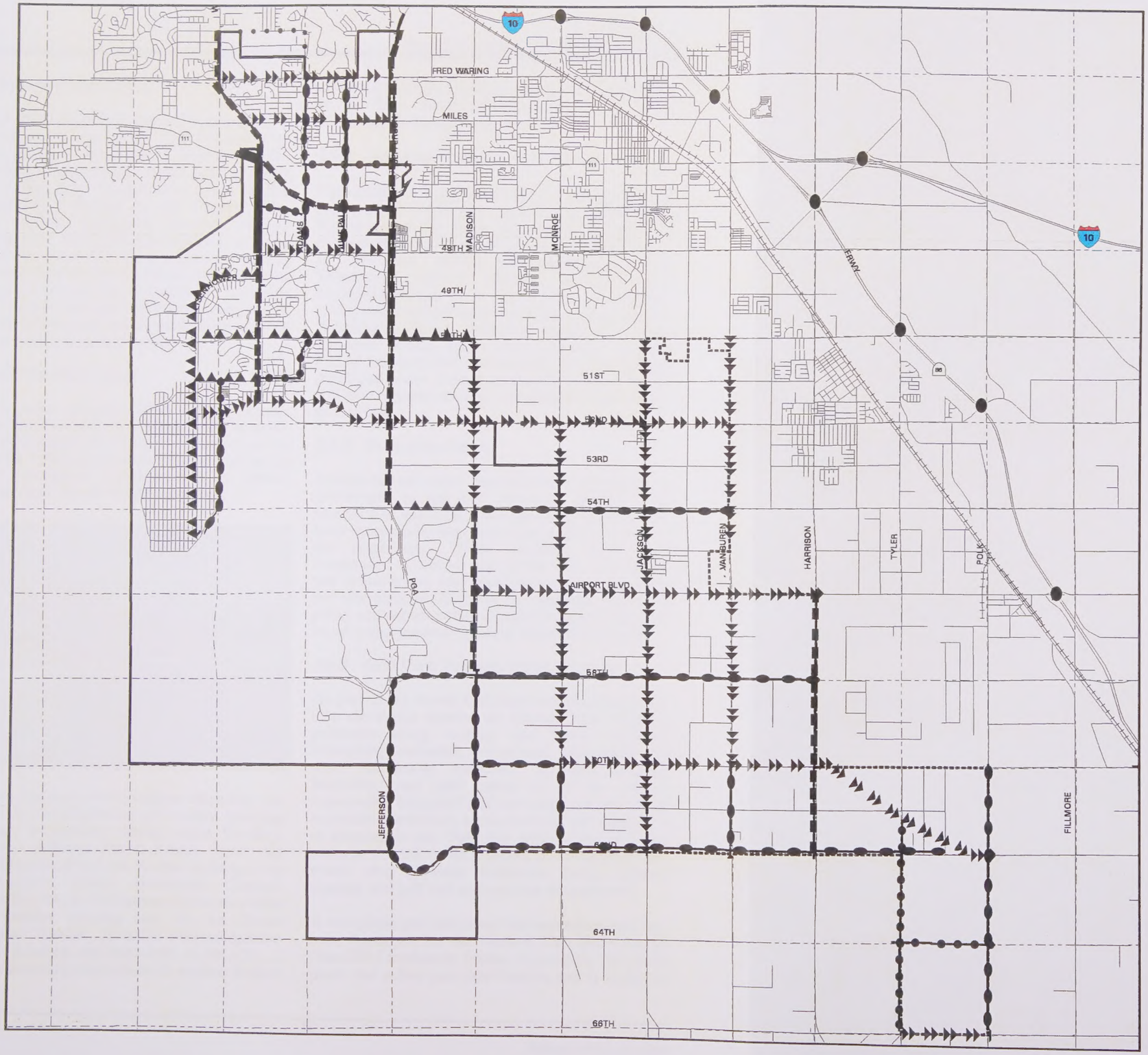
aerial information systems

City of La Quinta General Plan



LEGEND

- Roads
- Township/Range Sections
- Railroads
- City Limits
- Planning Area #1
- Planning Area #2
- City Sphere of Influence

EXHIBIT 2.6
CITY ROADWAY CLASSIFICATIONS

- Freeway Interchanges
- Augmented Major (8D)
- Major Arterial (6D)
- Primary Arterial - A (4D)
- Primary Arterial - B (4D)
- Secondary Arterial (4U)
- Modified Secondary (2D)
- Collector (2U)

Source: City of La Quinta General Plan Update Traffic Study, RKJK & Associates, Inc. September, 2000

Scale
1:72,000

0 5,000 10,000 15,000
Feet

N
NORTH

Riverside County Vicinity Map

Map Prepared on: December 14, 2001
Map Prepared by: Aerial Information Systems
Map Version No.: 6

TERRA NOVA® Planning & Research, Inc.

aerial information systems

2.6 Special Focus Issues

Several traffic/circulation special focus areas have been identified throughout the General Plan update process. Going beyond increased traffic volumes and infrastructure needs associated with future traffic, these transportation issues are also appropriately evaluated in the General Plan. These include inadequate planned roadway improvements in adjoining jurisdictions, assuring all-weather access for the community, securing additional right-of-way for future improvements, making provisions for pedestrians, equestrian needs, bicycles and golf carts, optimizing use of regional airports, and other issues. Each of these areas is briefly discussed below.

2.6.1All-Weather Access

Several major drainages affect roadway access both within the cove neighborhood and in areas north of Highway 111. Of special concern are the Coachella Valley Stormwater Channel and the La Quinta Evacuation Channel, both of which currently have key all-weather crossings.

However, there are a few locations which may still require the construction of all-weather crossings to assure accessibility during major flooding. Currently, Jefferson Street, Adams Street and Dune Palms Road lack all-weather crossings over the Coachella Valley Stormwater Channel. Avenue 50 east of Washington Street also lacks an all-weather crossing over the La Quinta Evacuation Channel. As traffic volumes increase at these locations and elsewhere in the City, it may be necessary to construct all-weather bridges at these crossings. Emergency preparedness planning in the City should also consider the need for additional all-weather crossings.

2.6.2 Roadway Capacity Preservation

The construction and maintenance of roads is one of the most expensive public responsibilities. Rights-of-way for roads also create a substantial demand on limited land and can have adverse, as well as, beneficial impacts on adjoining property. Therefore, roadway design, operation and maintenance must be as cost-effective as possible. Along major arterial roadways, such as Highway 111, Washington Street, Jefferson Street, and major east-west streets, access from adjoining property should be controlled and limited. In more densely developed areas, limited access and median islands will also improve roadway operation for vehicles and pedestrians.

2.6.2 Pedestrian Issues

Pedestrian and other non-motorized circulation is encouraged in the City wherever possible. The provision of sidewalks, bike lanes and multi-purpose trails is especially important along major roadways in the community. While sidewalks have been constructed in various parts of the City, their design and construction has been inconsistent, disjointed and unconnected. In future development, pedestrian safety and accommodation should be given emphasis equal to that currently given to automobile access.

2.6.3 Golf Cart Transportation Program

As part of the overall evaluation and planning of the City circulation system, the General Plan identifies pathways along existing and future roadways connecting residential, recreational, commercial and other community amenities. As with on-street bikepaths, cart path safety is of the utmost importance. Expanded golf cart usage can provide an enjoyable, convenient, economical and safe alternative to automobile use. State law requires that golf cart paths be limited to routes shown on an adopted plan, which also provides minimum design criteria, signage, and golf cart and operator requirements.

A two-phase golf cart route implementation plan has been developed for the General Plan (see General Plan EIR Circulations Studies Appendix). The initial phase has a five-year time horizon and is meant to

benefit existing developments. Phase II provides a longer term and more comprehensive route plan (see exhibits below). Golf cart use on designated public routes is permitted during daylight hours only. To facilitate safe crossing of Highway 111 and the Coachella Valley Stormwater Channel, the golf cart plan requires modifications to the roadway classification of Adams Street, which is reflected in the General Plan Circulation Plan and is provided by allowing a Class II golf cart path through the construction of a Modified Secondary Arterial. Phase I and II golf cart routes are described in detail in Section 5 of the Golf Cart Route Evaluation Study found in the Circulation Appendix of the General Plan Program EIR.

Golf carts to be used on the public golf cart routes must meet specific physical requirements set forth in the City golf cart plan, must be certified as "road ready" by the City and carry an appropriate permit sticker. Golf cart operators must carry a valid California Driver's license, have proof of insurance, be equipped with seatbelts and appropriate child safety equipment, and be properly maintained.

Off-street (Class I) golf cart paths must be designed to be shared with bicyclists and pedestrian and should be a minimum of 12 feet in width. On-street (Class II) cart paths should be a minimum of 8 feet in width and appropriately striped. Designated Class III routes, which do not require a separation on the roadway, should not require extensive modifications to existing roadways, except for the installation of appropriate signage. Local streets in the City will also be considered Class III golf routes.

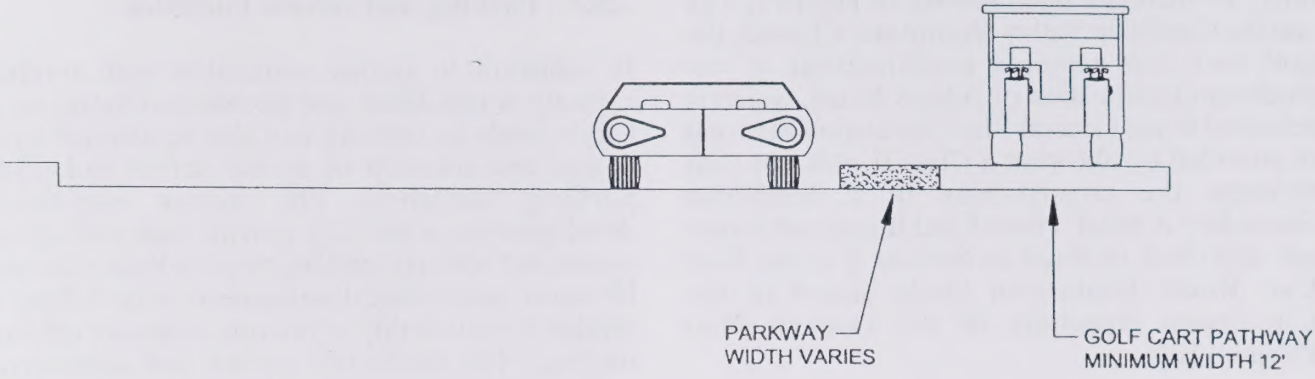
2.6.4 Securing Right of Way

The City has generally been able to secure right-of-way needed to provide full-width mid-block roadway improvements, and has also been able to secure additional right-of-way along major arterials designated as scenic corridors. The need for expanded intersection improvements throughout the City does not appear to require additional right-of-way to provide for additional through and turning lanes. The greatest demand for additional right-of-way may be at future critical intersections, where dual left turn lanes and dedicated right turn lanes would be needed. Please see the General Plan Program EIR for critical intersection design standards and traffic-related technical information.

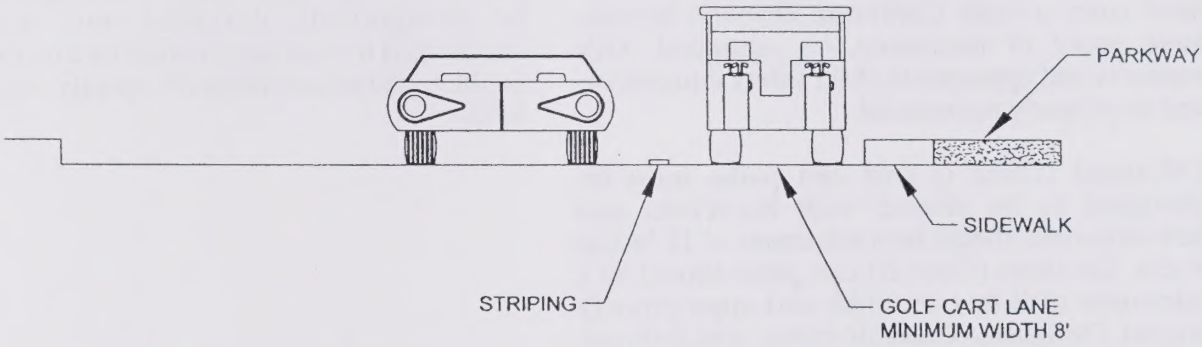
2.6.5 Parking and Access Facilities

In addition to issues associated with roadway capacity at mid-block and intersection locations, the City's roadway network can also be affected by the design and location of access drives and on-site parking facilities. The newer commercial developments in the City provide safe and efficient access and adequate parking to serve their customers. However, some older developments in the Village are limited in their ability to provide sufficient off-street parking. The needs for service and maintenance personnel must also be addressed in new and existing development. It is essential that new development, as well as projects undergoing redevelopment, be required to provide adequate on-site parking to meet the parking demand generated. Parking lot ingress and egress must also be thoughtfully designed and consolidation encouraged to minimize disruption to traffic flow and facilitate the preservation of capacity, while assuring safety.

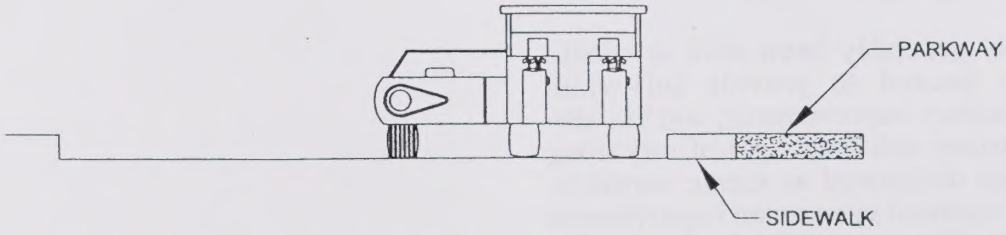
CLASS I: OFF-STREET PATHWAY ACCOMMODATING TWO-WAY GOLF CART TRAVEL SHARED WITH PEDESTRIANS AND BICYCLISTS.

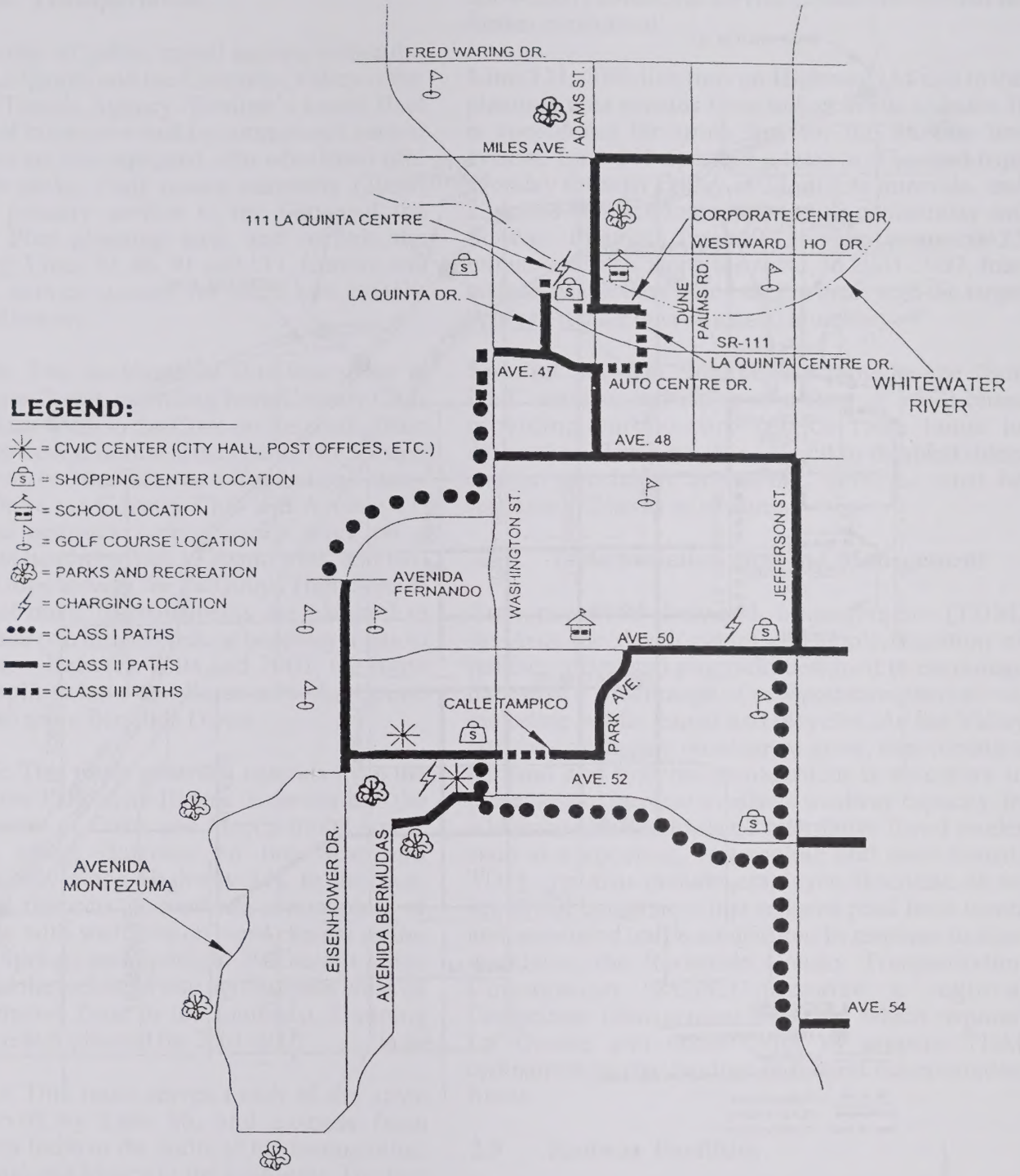


CLASS II: ON-STREET STRIPED LANE ACCOMMODATING ONE WAY GOLF CART TRAVEL SHARED WITH BICYCLISTS.



CLASS III: ON-STREET ROUTE SHARED WITH AUTOMOBILE AND BICYCLE TRAFFIC. CLASS III ROUTES ARE RESTRICTED TO STREETS WITH SPEED LIMITS OF 25 M.P.H. OR LESS.





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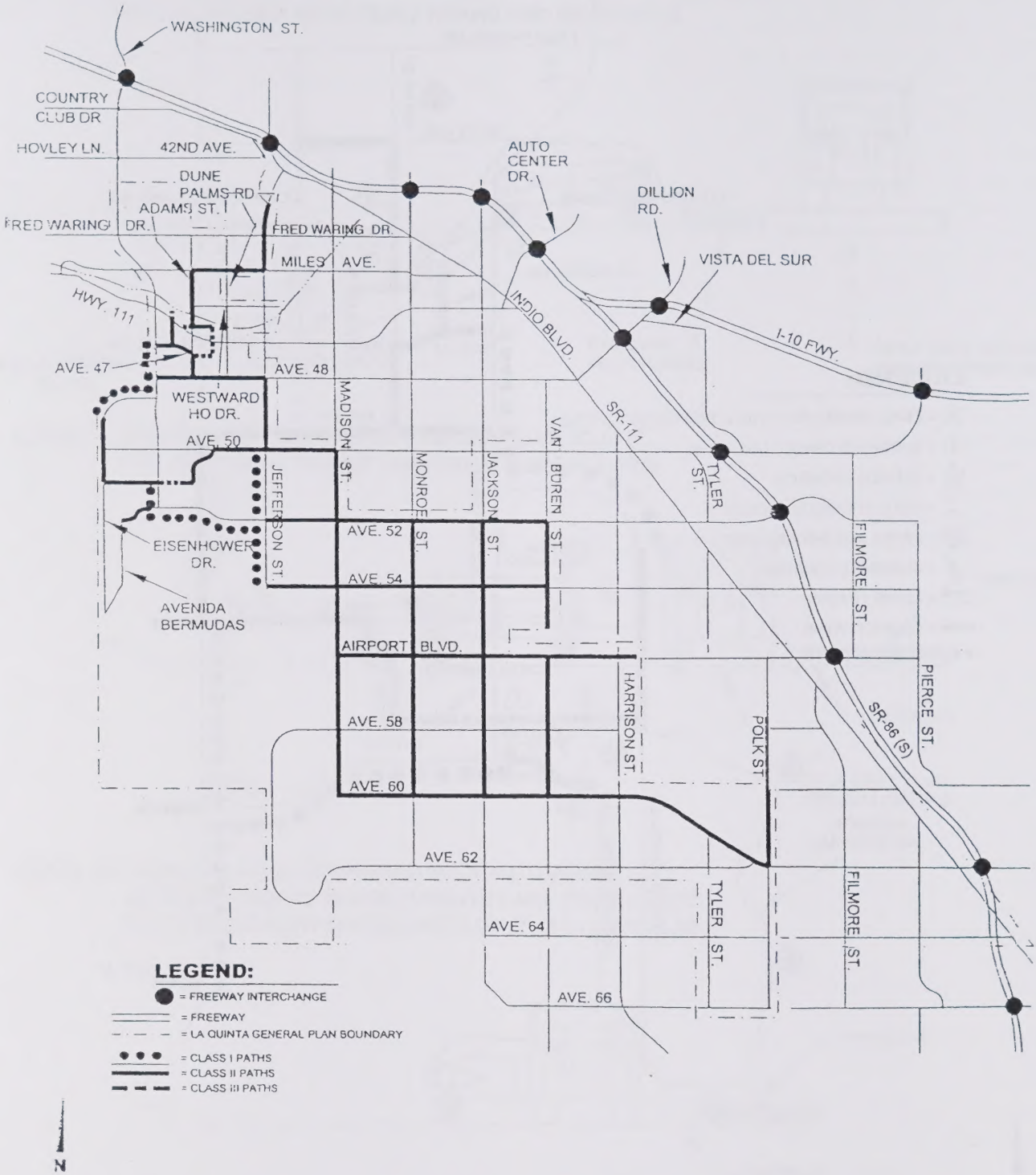
City of La Quinta
General Plan
Phase I (2005) Golf Cart Routes

Exhibit

2.8



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Planning & Research, Inc.

City of La Quinta
General Plan
Phase II (Buildout) Golf Cart Routes

Exhibit

2.9

2.7 Public Transportation

The provider of public transit service within the City of La Quinta and the Coachella Valley is the Sunline Transit Agency. Sunline's entire fleet consists of buses powered by compressed natural gas. Buses are also equipped with wheelchair lifts and bike racks. Four routes currently (2000) provide primary service to the City and the General Plan planning area, and include the following: Lines 70, 86, 91 and 111. Current and planned service routes for each are briefly described below:

Line 70: The backbone of this bus route is Washington Street, extending from Country Club Drive on the north to the Cove on the south. Four loops also extend from this backbone, two located in the cove, one on Westward Ho, and one along Yucca Drive via Country Club and Avenue 41. This line operates seven days a week on a 60-minute headway with 13 round trips, and two deviated trips serving the La Quinta High School on school days. Improvements are planned in 2003 to add one bus and reduce headway times to 30 minutes. Between 2004 and 2007, the route may be split to have two buses serve La Quinta and one to serve Bermuda Dunes.

Line 86: This route generally extends from the Golf Center Parkway/I-10 area in the north to the communities of Oasis and Mecca in the south, running along Harrison on the west and intermittently along Highway 111 to the east. This route connects the southeast communities of the valley with such employment centers as the Fantasy Springs and Spotlight 29 Casinos in the north, and the industrial and agribusiness areas of the Enterprise Zone to the southeast. Ongoing route review is planned for 2001-2007.

Line 91: This route serves much of the same area served by Line 86, and extends from downtown Indio in the north, to the communities of Thermal and Mecca to the southeast. The line primarily uses Highway 111 and also jogs westward to extend service to neighborhoods west of Highway 111. This line currently (2000) operates four round trips Monday through Saturday and three round trips on Sunday, with each trip being about 74 minutes in length. During 2003, Sunline envisions adding one round trip operating seven days a week. In 2004-2007, additional service enhancements will be further considered.

Line 111: This line runs on Highway 111 and in the planning area extends from Indian Wells to Indio. It is considered the trunk line for the Sunline bus system. Line 111 operates a total of 37 round trips Monday through Friday at 25 minute intervals, and 23 round trips at 44 minute intervals on Saturday and Sunday. Planning for 2001 targets consistent 25 minute intervals along the route. In 2001-2007, four additional full time buses are planned, with the target being to reduce intervals to 10 minutes.

Sundial Service: Sunline also provides the "Sun Dial" service, consisting of a fleet of small buses providing curb-to-curb service from home to destination. The service is offered to disabled riders and is wheelchair accessible. Services must be requested 72 hours in advance.

2.8 Transportation Demand Management

Transportation Demand Management (TDM) involves the development and implementation of policies, plans and programs designed to encourage the use of a wider range of transportation alternatives, including public transit and bicycles. As the Valley and the community continue to grow, transportation demand and systems management is necessary to preserve and increase available roadway capacity. In addition to an emphasis on alternative travel modes such as carpooling, van pooling and mass transit, TDM can also include employee flex-time as an important component that reduces peak hour travel and associated traffic congestion. In response to state mandates, the Riverside County Transportation Commission (RCTC) prepared a regional Congestion Management Program, which required La Quinta and other cities to prepare TDM ordinances or risk the loss of federal transportation funds.

2.9 Railway Facilities

Rail freight service is provided to the Coachella Valley by the Union Pacific Railroad (former SPRR), with freight transfer facilities located in Indio and Coachella. There is also current Amtrak service to Indio and Palm Springs on Union Pacific's line. These facilities carry between 30 and 40 trains per day, almost all of which are freight. These lines are what UPRR calls Centralized Track Control (CTC)

facilities, which include extensive electronic switching and communication facilities. There is neither direct planning area passenger nor freight access to these facilities. However, the Indio platform allows passenger boarding, and rail sidings in Indio and Coachella currently facilitate freight access. Future rail freight service may also become available east of Thermal.

2.10 Aircraft Traffic

The La Quinta General Plan area is served by three airports: Palm Springs International Airport, Desert Resorts (Thermal) Regional Airport and the Bermuda Dunes Airport. Current facilities as well as long-term plans are discussed below.

Palm Springs International Airport is the primary air transportation link for La Quinta and the Coachella Valley. The airport is classified in the National Plan of Integrated Airport Systems (NPIAS) as a long-haul commercial service airport. It is capable of supporting non-stop commercial service to destinations over 1,500 miles, and is classified as a small hub air passenger airport, based upon the percentage of national airline enplanements it supports. During the 1998-99 fiscal year, the airport accommodated a total of 1,254,106 passengers, including 628,784 deplanements and 625,322 enplanements. Major destination cities include San Francisco, Chicago, Seattle and New York. Commercial traffic is clearly seasonal, with the peak season being the January-February-March period and the slowest period occurring during the summer months. Commercial operations are expected to continue to grow, with passenger enplanements projected to reach approximately 809,256 by the year 2015.

Desert Resorts Regional Airport was built by the U.S. Army during World War II, in the early 1940s. Ownership was transferred to Riverside County in 1948. This airport is classified by the FAA as a "Transport Airport' in the National Plan of Integrated Airport Systems. This facility is classified as a General Aviation airport and meets the General Aviation needs of the eastern Coachella Valley. Currently, most operations involve smaller aircraft with wingspans less than 79 feet. Forecasts of future activity indicate that the airport should be planned, at a minimum, to accommodate aircraft with wingspans in excess of 79 feet and up to 262 feet. Precision instrument approach operations are normally planned for most Transport airports. The current airport master plan calls for facilities to accommodate aircraft with wingspans up to 171 feet. The current (2000) annual operations at the Desert Resorts Regional Airport are estimated at approximately 108,100 operations. Airport capacity and operations are expected to increase to approximately 210,000 and 140,000 operations, respectively, by 2010.

Bermuda Dunes Airport is a General Aviation Airport located adjacent and parallel to the Union Pacific Railroad/US Interstate-10 transportation corridor. A total of approximately 25,500 operations occur at this airport, of which about 6.6% are business jets. The expansion of facilities at this airport are essentially precluded by surrounding development. Annual future operations are expected to reach 26,852.

2.11 Major Utility Corridors

While not typically considered in the context of transportation, General Plans play an important role in assuring the planned provision of major corridors and easements for the transport of natural gas, electricity, communications, domestic water and sewerage, and storm drainage. High capacity electricity, natural gas and petroleum transmission corridors typically occur within easements ranging from 50 to hundreds of feet in width. In many instances, the need for utility distribution corridors is met through the provision of easements in or adjacent to City streets and along common lot lines. The planning of future land use, the division of land and the processing of development applications requires consultation and coordination with utility companies and other service providers, to assure the availability, provision or preservation of easements and rights-of-way for the extension of roads and utility lines and services. The placement of electrical transmission facilities underground also plays an important role in providing an uncluttered and relatively obstruction-free parkway adjacent to major streets (Also see Infrastructure and Public Services Element).

2.12 Multi-Purpose Trails

An extensive and safe multi-purpose trail system should be considered an integral part of any community circulation system, and especially so for a resort residential community. The City has a comprehensive plan for sidewalks, bicycle lanes or multi-use trails within roadway designs and rights-of-way. Carefully thought out and planned alternative transportation corridors serving pedestrians, equestrians and bicyclers will enhance and give greater opportunity to the use of various alternative modes of transportation and enhance the recreation activities of the City's residents and visitors. The multi-use trails will also serve as links to recreational facilities throughout the community.

2.13 Future Buildout Needs

Based upon an analysis of the Post-2020 buildout period, the Circulation Element sets forth specific design classifications for the City's backbone circulation network. The geometry assumed for planning area intersections can be accommodated based upon the roadway classification system. A total of 5 roadway segments are projected to have potential traffic volumes which exceed capacity (i.e. V/C ratios of 1.0 or greater). Although a roadway segment may be identified as exceeding the allowable capacity, intersection improvements may allow the endpoints of a segment to operate acceptably. The modelling effort also makes certain assumptions about access to network roadways, and actual impacts to capacity from adjoining development may be lessened by thoughtful site planning, restricted access and conditions of approval.

Therefore, the City should continue to review and monitor land use trends and their associated changes in traffic volumes and patterns, and make periodic adjustments in planning and program implementation by utilizing roadway improvement and maintenance management programs. This will be accomplished by regularly monitoring traffic on major roadways and by conducting ongoing inventories of current traffic and circulation patterns. Given the rate of growth in the community, this should be done at a minimum of once every two years. The City should continue to coordinate with State and regional agencies that have jurisdiction over the state highways in or affecting the community. Through the phased implementation of the roadway cross-sections and identified intersection geometries set forth in this Element, and coordination with regional, state and federal regulators, the City will progressively alleviate current problems and avoid future system inadequacies.

The development and implementation of Transportation Demand Management (TDM) techniques should be as widely used as practical to extend or preserve capacity of existing roadways. These techniques may include efforts to encourage car or van pooling, work flex-time and the continued utilization and future expansion of public transit services provided by Sunline Transit.

On-going planning and analysis of the City circulation network will also suggest special intersection designs that allow dedicated right turn overlap signal phasing to provide free right turns where appropriate, and other system enhancements that provide cost effective solutions. Detailed analysis is periodically undertaken for the intersections identified in project-specific, City monitoring and engineering studies, and the General Plan to refine realignments and design engineering. These on-going monitoring, analysis and design procedures will help to assure availability of necessary right-of-way for adequate long-term Levels of Service.

Other transportation management techniques that address specific issues of concern within the City of La Quinta include limiting, and in some cases restricting access onto Highways 111, Washington Street, Jefferson Street and other major roadways. This can be accomplished by combining driveways, installing raised center medians to restrict turning movements, adding travel and turning lanes, and minimizing the number of intersections. Finally, a concerted effort by the City to balance local jobs and housing, and encouraging mixed-use development will minimize future traffic volumes in the City. All of these measures are discussed in detail in the General Plan EIR.

3.0 OPEN SPACE

An essential component of community design is natural, undeveloped open space, including parks and recreational sites, waterways and areas conserved for their biological, historic or cultural value. Open spaces provide relief from urban congestion, offer opportunities for public recreation and the enjoyment of scenic beauty, and enhance the quality of life in the community. The effective planning and management of open space is essential to its long-term viability.

3.1 Santa Rosa and Coral Reef Mountains

The Santa Rosa Mountains extend along the western City boundary, from the Coachella Valley Stormwater Channel south to the southeastern planning area boundary. The Coral Reef Mountains reach from the Santa Rosa Mountains into the south central portion of the City. The Coral Reef Mountains lie east of the Cove community and function as a geologic barrier between the Cove and Lake Cahuilla. The rugged topography of the mountains provides a dramatic visual backdrop to the City and contributes significantly to its scenic resources.

The Santa Rosa Mountains also provide unique wildlife habitat and constitute a valuable biological resource for endangered and threatened species. In an effort to protect these important scenic and wildlife resources, and to plan for their future preservation, the Santa Rosa Mountains have been designated as a National Scenic Area by the U.S. Congress. This status provides increased opportunities for federal funding for mountain preservation programs. In 2000, the Santa Rosa and San Jacinto mountains were protected as a National Monument, under legislation sponsored by Senator Feinstein and Congresswoman Bono.

A large portion of the mountain range, and limited developed areas within the planning area, are included within the Santa Rosa Mountains Wildlife Habitat Management Plan.[1] The Plan was implemented by the Bureau of Land Management (BLM) and California Department of Fish and Game (CDFG) in an effort to manage the local population of Peninsular bighorn sheep and other sensitive species.

Much of the Coral Reef and Santa Rosa Mountains are also included as part of the Coachella Valley Multi-Species Habitat Conservation Plan (MSHCP) planning area. The MSHCP is a regional biological resource management effort, coordinated through the Coachella Valley Association of Governments. The City has been, and will continue to be involved in its development.

The City's Hillside Conservation Zone ordinance preserves as open space the hillsides and alluvial fan areas in the Santa Rosa and Coral Reef Mountains. The ordinance limits development in areas with slopes greater than 20 percent, and defines permitted land uses in hillside and alluvial fan areas with slopes less than 20 percent.

The City's preservation of the Santa Rosa and Coral Reef Mountains as open space reinforces its commitment to protecting unique and valuable natural resources.

3.2 Floodways and Utility Corridors

Major flood control and canal facilities in the planning area include the Coachella Valley Stormwater Channel, the La Quinta Evacuation Channel, the East La Quinta Channel, the Coachella Canal and stormwater improvements adjacent to the Cove. These facilities convey stormwater and irrigation water through the planning area and may also function as pedestrian and/or equestrian trail links. Major utility corridors may also be used for recreational purposes.

3.3 Parks and Recreation Areas

Developed and undeveloped park lands are also important open space resources that need to be planned and effectively managed. The planning area currently contains approximately 926± acres of public parks, which provide opportunities for active and passive recreation. A detailed analysis of existing parks and recreation facilities is provided in Chapter 4.0 of this document.

3.4 Agricultural Lands

Agricultural lands include those lands which are currently, or have been under cultivation. Within the planning area, most agricultural lands are located south of Avenue 56 and east of Jefferson Street. Preservation of unique agricultural sites links the community with its rural, agricultural past.

3.5 Golf Courses

Golf courses constitute an important source of recreation for La Quinta residents and visitors and are an integral part of the City's economy. The designation of golf courses as open space reinforces their importance to the City. Public and private golf course development comprises a substantial portion of the City's open space lands. Most local golf courses have been constructed in association with resorts and/or residential projects. Within the planning area, golf course development is generally dispersed.

3.6 Mineral Resources

As a result of the long-term erosion of mountains and hills in the Coachella Valley, mineral deposits within the valley are largely limited to sand and gravel. State mineral resource maps prepared by the California Department of Conservation indicate that most of the planning area contains no significant mineral deposits.

Only one area in the City is known to have had significant mineral deposits. The site is located southeast of Lake Cahuilla and once served as a functioning sand and gravel mine. In 1999, it was converted to a golf course and residential resort community (The Quarry). There are currently no mineral production sites in operation within the planning area. A detailed analysis of mineral resources within the planning area is provided in the Natural Resources section of this document.

3.7 Cultural Resources

Lands which contain, or historically contained permanent shelter, water and food sources are likely to contain important archaeological resources. Once identified, archaeological sites and historic structures and landmarks can be designated as open space to assure their preservation. The planning area includes a number of structures which have been designated by the California Historic Resources Inventory and the City's Historic Survey as having historic significance. Existing historic landmarks are concentrated in the north Cove area and along Washington Street, south of the Coachella Valley Stormwater Channel

A detailed analysis of cultural and archaeological resources in the planning area is provided in the Cultural Resources chapter of this document.

3.8 Environmental Hazards

Another important function of open space lands is to protect the public from environmental hazards. Open space can reduce the potential for injury, property loss and death by functioning as a buffer between humans and hazards, including earthquake fault zones, unstable soils or slopes, flooding and fire.

No active earthquake faults are known to transect the planning area.[2] However, the potential for seismically-induced ground rupture, liquefaction and rockfall exists along the slopes of the Santa Rosa Mountains and elsewhere in the planning area. Once identified, areas which are particularly susceptible to environmental hazards can be preserved as open space. These lands can also function as wildlife habitat and/or recreational corridors.

Additional information regarding geological hazards is provided in Chapter 7.0 of this document and the project Environmental Impact Report (EIR).

3.9 Designated Open Space Lands

The General Plan provides for approximately 12,214 acres of open space lands, or 35 percent of the total planning area. The types of designated

open space land uses, and the acreages of each are shown in the table below.

Table 3.1
Open Space Lands
in the Planning Area

	Acreage			
Area	Parks	Open Space	Golf Course	Water-Course
City	729.3	5,505	4,111.9	601.7
Sphere	0.0	0.0	317.8	0.0
Planning Area #1	0.00	44.5	258.6	0.0
Planning Area #2	0.0	645.6	0.0	0.0
TOTAL	**729.3**	**6,195.1**	**4,688.3**	**601.7**

3.9.1 Acquisition of Open Space Lands

To facilitate the continued preservation of open space in California, a number of conservation programs and legislative measures have been enacted. Five such measures are described below.

The Conservation Easement Act (Civil Code Sections 815-816) enables a local government or non-profit organization to acquire continual easements for historic preservation and the conservation of agricultural and open space lands. The landowner and accepting agency determine what land uses will be permitted within the easement, and the terms are incorporated into the easement agreement.

The Open Space Easement Act of 1974 (Government Code Sections 51070-51097) provides another mechanism for preserving open space. This concept gives local governments the authority to accept easements granted to them or non-profit organizations for the purpose of conserving open space and agricultural lands.

The Scenic Easement Deed Act (Government Code Sections 6950-6954) authorizes local governments to purchase fee or scenic easements, but there is no special mechanism for obtaining them. Land uses are regulated by the Act , and local governments are authorized to adopt an ordinance which establishes open space covenants with property owners.

The Less-Than-Fee Real Property Interest grants land holders the right to prevent certain land uses on their properties. Easements that qualify as less-than-fee interests are often used because they are less expensive than full fee rights, can be more effective than zoning and may yield tax advantages to property owners. Local governments may obtain these easements by purchase, exaction or gift.

A public land conservation trust is another mechanism for protecting open space, agricultural lands, wildlife habitat and other natural resources. Land conservation trusts can use a variety of measures to preserve open space. Funds may be used to acquire fee simple interest in real estate, and public land holdings are then leased by the public trust. Conservation easements also may be purchased to protect sensitive lands from development.

Private land trusts, such as the Nature Conservancy, are often capable of responding more quickly and efficiently than governmental entities in purchasing conservation lands. They also pursue state and federal grants and loans and assist public agencies in the acquisition of open space lands.

3.9.2 Funding Mechanisms

The state legislature has helped create a broad range of grant and loan programs which can be used to finance open space acquisition, including the following:

- Land and Water Conservation Fund (Department of Parks and Recreation)
- Habitat Conservation Program (Department of Parks and Recreation)
- Public Access Program (Department of Fish and Game)
- Wildlife Conservation Board Program (Department of Fish and Game)
- Urban Forestry Program (Department of Forestry).

4.0 Public Services and Infrastructure

4.1 Recreational Services and Facilities

A variety of parks and recreation facilities are available within the General Plan planning area, including parks, trails and community center facilities. Existing public facilities are generally operated and maintained by three agencies: the Riverside County Regional Parks and Open Space District, the Coachella Valley Recreation and Park District, and the City of La Quinta Community Services Department. The Bureau of Land Management also maintains a system of hiking and equestrian trails in the southwestern region of the planning area. Existing parks, park classifications, acreages and administering agencies are presented in Table 4.1. Please note that all existing parks are located within the City limits, and none are located in the Sphere, Planning Area #1, or Planning Area #2. The locations of existing and proposed park and recreation facilities are illustrated on Exhibit 4.1.

4.1.1 Riverside County Regional Parks and Open Space District

The Riverside County Regional Parks and Open Space District operates and maintains Lake Cahuilla County Park, which is located at the terminus of Avenue 58, southeast of the Cove community. Park lands are leased by the County from the Coachella Valley Water District, which leases the lands from the Bureau of Land Management and Bureau of Reclamation.[3] The regional park consists of ±845 acres, including 710 acres of parkland and the 135-acre Lake Cahuilla.[4] A wide variety of recreational activities and facilities are offered, including hiking and equestrian trails, horse camps, a swimming pool, picnic facilities, playgrounds, recreational vehicle hookups, fishing and camping.The District is currently improving and renovating existing park facilities and installing new parking lot lighting, shade shelters and restrooms.[5]

The County of Riverside has designated a number of regional and community trails and Class I bikeways throughout the planning area.[6] Regional and community trails are designed for equestrian activity, walking and mountain bike riding, while Class I bikeways are intended specifically for bicycle riding. Many of the County's trails are not yet fully dedicated and improved, however, this process will be undertaken as new development occurs.

4.1.2 Coachella Valley Recreation and Park District

The Coachella Valley Recreation and Park District provides public park and recreation facilities for an area extending from Palm Desert to the Salton Sea. Within the La Quinta General Plan planning area, the District owns and maintains Frances Hack La Quinta Community Park, which is a community park consisting of approximately 6.5 acres and a 5,000 square foot community center.[7] The park includes a baseball diamond, 1.5 basketball courts, a playground and a picnic pavilion.

The District also maintains a 25-year contract with the City of La Quinta to maintain and staff the City's swimming pool, located at the Fritz Burns Park at the corner of Avenida Bermudas and Avenue 52.[8]

4.1.3 City of La Quinta[9]

The City of La Quinta owns, operates and maintains three mini-parks, five neighborhood parks, two community parks, and one recreational senior center. A multi-use trail system has also been dedicated to provide recreational opportunities for pedestrians and cyclists.

Mini-parks, also referred to as pocket parks, generally comprise less than one acre and are intended to complement adjacent uses. They may take the form of children's play lots, passive seating areas, city entry features, or special purpose open spaces. Eisenhower Park, a mini-park in the southern portion of the Cove, was recently expanded to 0.6 acres. Its amenities include a playground and benches. Desert Club Manor Park and Velasco Park are currently (2002) being developed and will each consist of 0.3 acres. Desert Club Manor Park is located between Sagebrush Avenue and Saguaro Drive, and will include a

playground and walking path. Velasco Park, located at Velasco and Temecula in the Cove, offers a playground and benches.

Neighborhood parks are intended to provide for the active and passive recreational needs of nearby residents, and typically range from two to ten acres. Facilities may include picnic areas, playground equipment, hard court areas, multi-purpose fields for informal games, and limited parking. The City maintains six neighborhood parks, including Adams Park, Desert Pride Park, Fritz Burns Park, and Seasons Park, and Monticello Park. Fritz Burns Park contains a broad range of recreational amenities, including a playground, swimming pool, tennis courts, roller hockey rink, picnic tables, barbecue facilities, public restrooms, and a recreational water feature. Monticello Park, which is currently (2002) under construction at the southwest corner of Fred Waring Drive and Jefferson Avenue, will include a playground and benches.

Community parks provide recreational opportunities on a larger scale than neighborhood parks and generally range in size from 20 to 40 acres. The City of La Quinta and the Desert Sands Unified School District have joint ownership of the La Quinta Sports Complex, a community park consisting of 18.2 acres. The complex is maintained by the City and includes six lighted baseball/softball fields with soccer field overlays, a playground, shade structures with benches, a snack bar and public restrooms.

By Steve Plone

The City is currently (2002) constructing the La Quinta Park at the northeast corner of Adams Street and Westward Ho Drive. The park will encompass about 18 acres and will include a wide range of recreational amenities, including soccer and baseball fields, restroom/concession stand, playground, picnic facilities, walking path, basketball courts, and a proposed skate park. Construction is expected to be completed by the end of 2002.

The La Quinta Senior Center was dedicated in December 1994 and is located at 78-450 Avenida LaFonda.[10] The center is a 10,500 square foot facility that provides educational and recreational opportunities. The facility includes a meeting room, multi-purpose room, kitchen, health center, computer lab, ceramics kiln, putting green and horseshoe pit.[11]

The City purchased a historic building at the southeast corner of Avenida Montezuma and Avenida Mendoza in 2000, and leased it to the La Quinta Historical Society for use as a museum. The 800 square foot facility will be expanded through construction of a two story free standing building of 7,271 square feet, consisting of exhibit areas, meeting room, archive, museum store and classroom.

City Trail System

The City has planned and dedicated a comprehensive system of multi-use trails extending throughout much of the City. Trail facilities are categorized by I, II, or III classifications. Class I trails are completely separated from any street or highway and are dedicated exclusively for shared bicycle and pedestrian use. Because of their inherent pedestrian/bicycle conflicts, Class I bikeways serve only a recreational purpose for bicyclists. Class II bikeways are on-road bicycle lanes within the paved section of the street. Class III trails are bike routes that are located on the street within vehicular traffic lanes. The Bear Creek Path is a Class I biking and hiking trail that extends approximately 3 miles along the western perimeter of the Cove.[12] A total of approximately 56 miles of trails have been planned and dedicated throughout the City; however, many of the City's trails are not yet marked or fully improved. Most proposed bicycle trails and facilities will be developed in conjunction with new development projects.[13]

Table 4.1
La Quinta General Plan Planning Area
Existing Parks

Park Facility[1]	Classification	Acreage	Owner/Administrator
Desert Club Manor Park	Mini-Park	0.3	City of La Quinta
Eisenhower Park	Mini-Park	0.6	City of La Quinta
Velasco Park	Mini-Park	0.3	City of La Quinta
Adams Park	Neighborhood	2.8	City of La Quinta
Cove Oasis Trailhead	Neighborhood	13.7	City of La Quinta
Desert Pride Park	Neighborhood	3.0	City of La Quinta
Fritz Burns Park	Neighborhood	7.7	City of La Quinta
Monticello Park	Neighborhood	5.0	City of La Quinta
Seasons Park	Neighborhood	5.0	City of La Quinta
La Quinta Park	Community	18.07	City of La Quinta
Frances Hack Park	Community	6.5	CV Recreation & Park District
La Quinta Sports Complex	Community	18.2	City of La Quinta/DSUSD
Lake Cahuilla County Park	Regional	845.0	County of Riverside
Total Acres:		**926.17**	

Source: Community Services Director, City of La Quinta, January 10, 2002.

4.1.4 Bureau of Land Management[14]

The Bureau of Land Management (BLM) maintains a system of public hiking and equestrian trails which traverse the Santa Rosa Mountains in the southwestern region of the planning area. The trailhead for the Bear Creek Canyon Trail is located at the southern-most point of the Cove. The trail is available for hiking and equestrian activities and extends south for approximately 4.5 miles into the Santa Rosa Wilderness Area.

The Boo Hoff Trail is a hiking and equestrian trail that is accessible from the Cove Oasis Trailhead or Morrow Trail at Lake Cahuilla Park. The trail follows an historic Native American trail through Guadalupe Canyon for approximately 9 miles. The trailhead for the Morrow Trail is located in Lake Cahuilla Park. This hiking and equestrian trail serves as a connection between Lake Cahuilla Park and the Boo Hoff Trail.

4.1.5 Parkland Needs Assessment

Quimby Act standards are frequently used to determine the adequacy of parkland provided in a community. The Quimby Act allows local governments to exact the dedication of parkland or in-lieu fees, or both, from developers of residential subdivisions based on a standard of 3.0 acres per thousand population. Where a community's existing parkland already exceeds this amount, the Quimby Act allows for parkland dedications or fee exactions up to a maximum of 5.0 acres per thousand population. The provisions of the Quimby Act apply only to neighborhood and community parks, and do not include regional parks.

Table 4.2 identifies the projected population at buildout of the Recommend Alternative and describes the parkland acreage needed to serve this population based on the Quimby Act standard of

3.0 acres per 1,000 resident. As shown in the table, at General Plan buildout, a total of about 481 acres of parkland will be needed to serve the entire planning area. This includes 182± in the City limits, 13± acres in the sphere-of-influence, 101± acres in Planning Area #1, and 186± acres in Planning Area #2.

Table 4.2
Park Acreage Needed
at General Plan Buildout

Area	Buildout Population	Park Acreage Needed at Buildout*
City	60,639	181.9
Sphere	4,211	12.6
Planning Area #1	33,779	101.3
Planning Area #2	61,828	185.5
TOTAL	**160,457**	**481.3**

*Based on Quimby Act standard of 3.0 acres of parkland per 1,000 residents.

4.1.6 Proposed Park Facilities

The City of La Quinta has planned a number of new parks to serve the future needs of its growing population. City parks that are planned for future development are shown in Table 4.3.

Implementation of the City's Civic Center Master Plan will result in the development of approximately 10 acres of parkland adjacent to the Civic Center and Senior Center.[15] Phase I of the Master Plan will include the construction of major walkways and turf areas, a historical plaza, rose and desert gardens, and a lake containing a stage and sculpture fountain. Phase II will facilitate the construction of a children's garden, exercise stations and shade structures.[19] The park is currently under construction and is expected to open by the end of 2002.

The Coachella Valley Recreation and Park District is considering the possibility of constructing a 40-acre park on lands near Desert Resorts Regional Airport.[20] This park is in the early phases of planning and negotiation. At this time, it is unclear whether the park will be located within the La Quinta General Plan planning area. While it is not expected to be constructed in the immediate future, it is possible it will be developed during General Plan buildout. For this reason, it is included in the list of proposed parks presented in Table 4.3.

Table 4.3
La Quinta General Plan Planning Area
Proposed Parks and Recreation Facilities

Park Name	Classification	Acres	Owner/Administrator
Miles Avenue Park	Neighborhood	1.4	City of La Quinta
Civic Center Campus*	Neighborhood	10.0	City of La Quinta
Bear Creek Park	Community	35.9	City of La Quinta
Unnamed (Desert Resorts Regional Airport)	Community	40.0	CV Recreation & Parks District
TOTAL ACRES		**87.3**	

*Anticipated completion by end of 2002. Source: Community Services Director, City of La Quinta, January 10, 2002

The Riverside County Regional Park and Open Space District has no immediate plans to construct new park facilities within the planning area. Instead, its resources are currently being directed at improving and renovating facilities at Lake Cahuilla County Park.[16]

As shown in Table 4.3, above, the City of La Quinta plans to construct approximately 47.3 acres of new parkland within the City limits. An additional 40.0 acres of parkland are proposed by the Coachella Valley Recreation and Parks District in the vicinity of the Desert Resorts Regional Airport. This park may or may not be located in Planning Area #2.

4.2 Educational Services and Facilities

The La Quinta General Plan planning area is served by two public school districts. The Desert Sands Unified School District serves students living west of Jefferson Street and north of Avenue 48. Students living east of Jefferson Street and south of Avenue 48 attend schools operated by the Coachella Valley Unified School District.

4.2.1 Desert Sands Unified School District

The Desert Sands Unified School District (DSUSD) operates three elementary schools, two middle schools, and one high school serving the General Plan planning area. Truman Elementary is located at 78-870 Avenue 50 in La Quinta; Adams Elementary is located at 50-800 Desert Club Drive in La Quinta; and Amelia Earhart Elementary School of International Studies is located at 45-250 Dune Palms Road Indio. Each of these schools serves students in kindergarten through fifth grade. La Quinta Middle School serves students in sixth through eighth grades and is located at 78-900 Avenue 50 in La Quinta. John Glenn Middle School of International Studies also serves students in sixth through eighth grades and is located at 79–655 Miles Avenue in Indio. La Quinta High School serves students in ninth through twelfth grades and is located at 79-255 Westward Ho in La Quinta. The locations of these schools are shown in Exhibit 4.1.

Enrollment figures for the 2001-2002 school year, and current capacity conditions for each school are presented in the table below.

4.2.2 Coachella Valley Unified School District

The Coachella Valley Unified School District (CVUSD) operates two schools within the General Plan planning area. Westside School is located at 82-225 Airport Boulevard and serves students in kindergarten through eighth grades. Cahuilla Desert Academy is located at 82-489 Avenue 52 and serves students in seventh and eighth grades

Students residing east of Jefferson Avenue in the planning area also attend Coachella Valley High School, and Mountain Vista Elementary School which are located outside the planning area boundaries.

Coachella Valley High School is located at 83-800 Airport Boulevard and includes grades nine through twelve. The locations of these schools are shown in Exhibit 4.1.

Total enrollment for the 2001-2002 school year, and current capacity figures for these schools are shown in Table 4.5. The information provided in the table is based on the Coachella Valley Unified School District's assessment of current school conditions.

Table 4.4
La Quinta General Plan Planning Area Desert Sands Unified School District Facilities

School Name	Geographic Location	2001-2002 Enrollment[1]	2001-2002 Maximum Capacity[2]
Elementary Schools (K-5)			
Truman Elementary	City of La Quinta	1,096	1,130
Adams Elementary	City of La Quinta	861	835
Amelia Earhart Elementary	City of Indio	659	750
Middle Schools (6-8)			
La Quinta Middle	City of La Quinta	877	1,230
John Glenn Middle	City of Indio	1,042	1,000
High Schools (9-12)			
La Quinta High	City of La Quinta	2,095	2,240
	TOTAL:	**6,630**	**7,185**

[1]As of December 2001,

[2]Includes portable classroom space.

Source:Desert Sands Unified School District, personal correspondence, January 4,2002

Table 4.5
La Quinta General Plan Planning Area
Coachella Valley Unified School District Facilities

School Name	Geographic Location	2001-2002 Enrollment[1]	2001-2002 Maximum Capacity
Mountain Vista Elementary (K-6)	City of Indio	508	700
Westside School (K-12)	Planning Area #1	598	678
Cahuilla Desert Academy (7-8)	Planning Area #1	1,013	990
Coachella Valley High Sch. (9-12)	Thermal	2,806	1,712
	TOTAL:	**4,925**	**4,080**

[1]As of December 2001,

Source: Coachella Valley Unified School District, personal correspondence, January 4, 2002

4.2.3 Public School Needs Assessment

As shown in Tables 4.4 and 4.5, four of the ten public schools serving the La Quinta planning area are currently operating over capacity. Both DSUSD and CVUSD have indicated that they are using portable classrooms to address overcrowding.

The following table describes projected school enrollment at buildout of the General Plan. Student generation rates are based on those used by school districts in the Coachella Valley. As shown, buildout is projected to generate a total of approximately 23,372 students in the entire General Plan planning area, including 10,013 in the City limits, 539 in the SOI, 4,401 in Planning Area #1, and 8,419 in Planning Area #2.

Table 4.6
Projected School Enrollment at General Plan Buildout

Area/Grade Level & Unit Type	Buidlout Units	Student Generation Rate	Buildout Enrollment
City			
K-5 Single Family	20,785	0.2167	4,504
K-5 Multi-Family	4,551	0.1321	601
6-8 Single Family	20,785	0.1012	2,103
6-8 Multi-Family	4,551	0.0474	216
9-12 Single Family	20,785	0.1176	2,444
9-12 Multi-Family	4,551	0.0318	145
		Subtotal:	**10,013**
Sphere			
K-5 Single Family	997	0.2167	216
K-5 Multi-Family	495	0.1321	65
6-8 Single Family	997	0.1012	101
6-8 Multi-Family	495	0.0474	24
9-12 Single Family	997	0.1176	117
9-12 Multi-Family	495	0.0318	16
		Subtotal:	**539**
Planning Area No. 1			
K-5 Single Family	8,376	0.2167	1,815
K-5 Multi-Family	3,562	0.1321	471
6-8 Single Family	8,376	0.1012	848
6-8 Multi-Family	3,562	0.0474	169
9-12 Single Family	8,376	0.1176	985
9-12 Multi-Family	3,562	0.0318	113
		Subtotal:	**4,401**
Planning Area No. 2			
K-5 Single Family	17,100	0.2167	3,706
K-5 Multi-Family	4,593	0.1321	607
6-8 Single Family	17,100	0.1012	1,731
6-8 Multi-Family	4,593	0.0474	218
9-12 Single Family	17,100	0.1176	2,011
9-12 Multi-Family	4,593	0.0318	146
		Subtotal:	**8,419**
		Total:	**23,372**

It is important to note that several schools serving the planning area are located outside the planning area, including Coachella Valley High School, Mountain Vista Elementary, Amelia Earhart Elementary, and John Glenn Middle. Overcrowding in these schools is not only affected by growth in the La Quinta area, but also by growth in Indio, Coachella, and Thermal.

4.2.4 Funding of Future Schools

In 1986, the State Legislature approved AB 2926, which authorizes school districts to charge development fees for the construction and reconstruction of public schools. Statutory developer fees are currently $2.05 per square foot of residential development and $0.33 per square foot of commercial development. Government Code Section 65995 establishes a limit on the maximum fee that may be collected, and Section 53080 constrains the issuance of building permits until the developer provides proof of compliance with the school district's resolution. The City of La Quinta supports the collection of statutory school impact fees to fund the construction of local schools.

4.2.5 Proposed Public School Facilities

The Desert Sands Unified School District has no immediate plans to build new schools within the planning area.

CVUSD is planning a large, 3-school campus, which will include an elementary school, middle school, and high school located at the intersection of Avenue 66 and Tyler Street. The high school is expected to have a capacity of approximately 2,200 students, and the middle school is expected to accommodate 900 students. The capacity of the elementary school is expected to be approximately 732 students. The campus is currently under construction. The elementary and middle schools are expected to open in Fall 2003, and the high school is expected to open in Fall 2004.

4.2.6 Private Schools

There are currently no private schools within the General Plan planning area. However, several private schools are located throughout the Coachella Valley.

4.2.7 Higher Education

Regional colleges include College of the Desert Community College and Chapman University in Palm Desert. The University of California-Riverside (UCR) Extension Program offers professional enrichment courses at its Palm Desert center on the College of the Desert campus. The Coachella Valley campus of California State University-San Bernardino (CSUSB) has operated from the College of the Desert campus since 1986. However, a new campus is under construction at the northeast corner of Frank Sinatra Drive and Cook Street; it is expected to be operational by fall 2002.

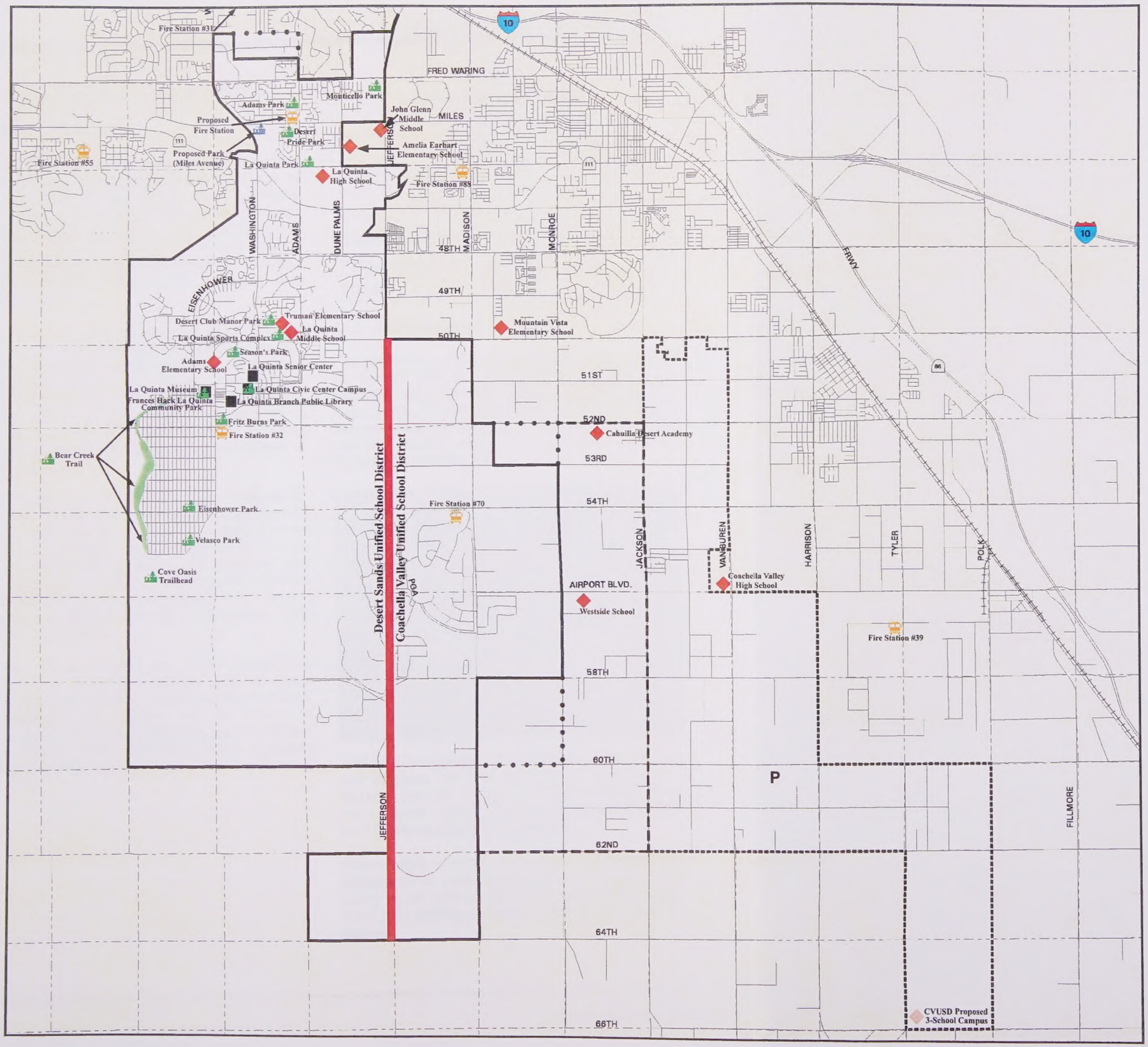
4.2.8 Libraries

The La Quinta Public Library is a branch of the Riverside County Library System located at 79-080 Calle Estado. The library originally opened in 1988 and was rededicated in May 1999 to celebrate a new expansion of the building. The library now totals 4,130 square feet and includes approximately 28,000 volumes. One full-time and six part-time employees staff the library for 40 hours per week. The library currently has five computers available for public use and installed seven more in June 1999 through a grant received by the Desert Sands Unified School District. The City has plans to construct a new 20,000 square foot library on the Civic Center Campus; construction is scheduled to take place between the years 2000 and 2002.[18]

Other regional libraries which are available to the public, and which may be used by residents living within the extended planning area, include the Indio branch of the Riverside County Library System and the Palm Desert/College of the Desert Library.

The County of Riverside uses an unadopted standard of 0.5 square feet per capita and 2 volumes per capita to determine the adequacy of public library facilities[18]. Based on this standard, at buildout of the General Plan, there will be a need for approximately 80,230 square feet of library space and 320,914 volumes to adequately serve the entire planning area. The table below describes specific needs for each portion of the planning area.

City of La Quinta General Plan



LEGEND

- Roads
- Township/Range Sections
- Railroads
- City Limits
- Planning Area #1
- Planning Area #2
- City Sphere of Influence
- P — Floating Park Designation

EXHIBIT 4.1
PUBLIC FACILITIES IN THE PLANNING AREA

- Public Education Facility
- Proposed Public Education Facility
- Park & Recreation Facility
- Proposed Park & Recreation Facility
- Fire Protection Facility
- Municipal Facility
- School District Boundary

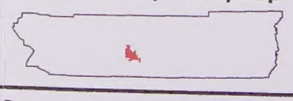
Source: City of La Quinta, CVUSD, DSUSD, 1999, 2002

Scale
1:72,000

0 5,000 10,000 15,000
Feet

NORTH

Riverside County Vicinity Map



Map Prepared on: December 14, 2001
Map Prepared by: Aerial Information Systems
Map Version No.: 6

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4.3 Public Safety Services and Facilities

4.3.1 Police Protection

The City of La Quinta contracts with the Riverside County Sheriff's Department for the provision of law enforcement services within the City limits. The contract provides police protection 24 hours per day, 7 days per week. The sheriff station serving the City is located at 82-695 Doctor Carreon Boulevard in Indio. Deputies are currently able to provide a five-minute response time throughout the City.

At this time, three sheriff units are assigned to the City, each of which consists of either one or two deputies, depending on the work shift and time of day. Therefore, there may be up to six deputies on duty in the City at a given time. One Community Services Officer is also assigned to the City to carry out a variety of support services, including code enforcement and transporting individuals to various locations.

Police protection within the City's sphere-of-influence. Planning Area #1 and Planning Area #2 is also administered by the Riverside County Sheriff's Department, from the station on Doctor Carreon Boulevard in Indio. All incidents and patrols occurring within the sphere-of-influence and extended planning area are handled by County-beat cars and are not covered under contract with the City of La Quinta.

A ratio of one deputy per 1,000 residents is considered a desirable staffing level in most communities nationwide. Based on this standard, approximately 161 deputies will be needed to adequately serve the entire planning area at buildout of the General Plan. The Table below describes specific needs for each portion of the planning area.

Table 4.7
Police Personnel Needed
at General Plan Buildout

Area	Buildout Population	No. Of Officers Needed
City	60,639	61
Sphere	4,211	4
Planning Area #1	33,779	34
Planning Area #2	61,828	62
TOTAL	**160,457**	**161**

4.3.2 Fire Protection

Fire protection services are provided to the City of La Quinta and the surrounding General Plan planning area by the Riverside County Fire Department. The planning area is served by six fire stations with overlapping coverage areas. Fire stations located within the planning area are illustrated in Exhibit 4.1.

Station #70 is located at the corner of 54th Avenue and Madison Street in the City of La Quinta. It includes one fire engine, one brush engine and one rescue squad vehicle. The station is staffed by two paid firefighters and five volunteers.

Station #32, located at Avenida Bermudas and Frances Hack Lane, houses two fire engines, one heavy squad vehicle, and one rescue squad vehicle. Two paid firefighters and 12 volunteers staff the station.

Station #31 is located at Avenue 42 and Starlight Lane in Bermuda Dunes. In 2000, its functional duties were largely re-assigned to the newly constructed Station #81, located at Washington Street and Avenue 38, north of Interstate-10. Nonetheless, station #31 continues to operate as a volunteer fire station, serving Bermuda Dunes and north La Quinta. It is staffed by fifteen volunteers and includes one engine and one squad vehicle.

Station #88 is located in the City of Indio, near the intersection of Madison Street and Dorothy Lane. Within the General Plan planning area, it serves northeast La Quinta, near La Quinta High School and Highway 111. The station is equipped with one fire engine, two paid firefighters and a 25-member volunteer company that rotates its services to all Indio fire stations.

Although Station #55 is considered part of the Indian Wells Fire Department, it serves a limited portion of northwest La Quinta, from the westerly City limits east to Adams Street, and from Highway 111 south to 47th Avenue. The station is equipped with a "telesquirt" (fire engine with tall ladder), two paid firefighters and a company of volunteers that rotates its services throughout all Indian Wells fire stations.

Station #39 is located near the Desert Resorts Airport at 56-925 Tyler Street. The station serves the area generally extending from Avenue 55 south to Avenue 64, and from Calhoun east to the Coachella Canal. It is staffed by two paid firefighters and five volunteers, and houses two fire engines and one water tender.

The City is currently (2002) planning for a fire station on Adams Street, north of Miles Avenue, to serve the northern part of the City.

The Insurance Services Office (ISO) rating for all Riverside County fire stations serving the planning area is four. This rating system is based on the provision of a variety of fire safety standards, including response times, communication facilities, building code standards, and staffing levels. The average response time for all the stations listed above is approximately 5 minutes.

Staffing levels for the Riverside County Fire Department have been determined by the County Board of Supervisors at a level of two paid firefighters for each station. All stations currently meet this standard.

4.4 Health Care Services and Facilities

In addition to a number of local physicians' offices and urgent care facilities, several large health care facilities are located in the vicinity of the General Plan planning area. The John F. Kennedy Memorial Hospital in Indio has 130 patient beds and approximately 85 active physicians.[17] Hospital facilities include a 24-hour emergency room, an intensive care unit (ICU), cardiac care unit, physical therapy unit, and other specialized care facilities. Expansions of the ICU and surgery department are expected to begin before the year 2000.[18]

The Eisenhower Medical Center complex in Rancho Mirage encompasses 98 acres and consists of four facilities: the Eisenhower Medical Center, the Betty Ford Center for Chemical Dependency, the Barbara Sinatra Children's Center, and the Annenberg Center for World Health Sciences. The medical center is licensed for 261 patient beds and includes an emergency room, intensive care unit, cardiac care unit, and other specialized care units.[19] The Andrew Allen Surgical Pavilion is currently under construction and will consist of a 40,000 square foot state-of-the-art medical surgical facility with 10 operating rooms. The project is expected to open in Fall of 2000.[20]

Desert Regional Medical Center in Palm Springs is a private, non-profit hospital that is licensed for 305 acute-care beds.[21] Hospital facilities include a 24-hour emergency room, Trauma Center, and outpatient services. The hospital has a Home Health Care department that provides in-home nursing care and household maintenance services. It also includes Hospice of the Desert, which offers services to the terminally ill.

4.5 Public Utilities

4.5.1 Potable Water

Potable water is provided to the General Plan planning area by the Coachella Valley Water District (CVWD). In the southeastern portion of the planning area, developments which are generally located south of 58th Avenue are served by private water wells.

Coachella Valley Water District [22]
The Coachella Valley Water District (CVWD) provides potable water services to the planning area. Water service is available in only limited areas south of 58th Avenue.

CVWD currently operates eleven active wells throughout the planning area. Two inactive wells are located within the PGA West development at the southwest corner of 54th Avenue and Madison Street. A new well is proposed at the southeast corner of Airport Boulevard and Madison Street. Most existing wells are drilled to depths of 700 to 800 feet; however, CVWD's newest wells are drilled to depths of between 1,000 and 1,300 feet.[23] Water is transported throughout the planning area by water mains up to 36 inches in diameter.

Within the planning area, CVWD's water distribution system includes five booster stations, each of which is located in the southeastern portion of the planning area, as shown in Exhibit 4.2. Water is stored in eight reservoirs, which are also located in the southern portion of the planning area. The capacity of the reservoirs ranges from 250,000 gallons to 5,000,000 gallons. Reservoir #6725, in Lake Cahuilla County Park has a capacity of ten million gallons. An additional reservoir, which will be capable of storing five million gallons, is planned near the southern edge of the Cove, at the edge of Lake Cahuilla County Park.

4.5.2 Wastewater

The Coachella Valley Water District operates and maintains the sanitary sewage collection and treatment system for the entire planning area. Wastewater from the planning area is collected and conveyed through sewer trunk lines generally ranging in size from 4 to 24 inches. Among the largest trunk lines are 18-inch force mains located within the rights-of-way of Washington Street, Jefferson Avenue, Madison Street, Avenue 50, Airport Boulevard, Avenue 58, and Avenue 60.[24]

Wastewater collected north of Miles Avenue is conveyed to the CVWD wastewater treatment plant located at Madison Street and Avenue 38. The plant currently has a total capacity of 2.5 million gallons per day and treats approximately 2 million gallons per day.[25] Effluent collected from the remainder of the planning area is conveyed to the Mid-Valley Reclamation Plant located on Avenue 63, between Fillmore and Pierce Streets. The current capacity of the plant is 5.8 million gallons per day, and it currently processes approximately 4 million gallons per day.[26] CVWD is continuously increasing the capacity of all its wastewater treatment plants through the construction of new treatment ponds, aeration plants and other infrastructure. CVWD expects to double the capacity of the Avenue 38 wastewater treatment plant within the next two years. The capacity of the Mid-Valley Reclamation Plan is expected to increase by approximately 20 percent during the same time period.[27]

While much of the planning area is sewered, many homes and businesses continue to operate on individual septic systems. In particular, most development located south of Airport Boulevard relies on private septic systems to treat and dispose of wastewater. Many of these systems will be abandoned over time, as existing and future development is connected to CVWD sewage conveyance lines.

4.5.3 Solid Waste

The City of La Quinta and Riverside County contract with Waste Management of the Desert to provide solid waste collection and disposal services to the City and planning area. Services are provided through a franchise agreement which is renegotiated periodically.[28] The City has recently renegotiated its contract with Waste Management, through the year 2008.

From January through April 1999, approximately 100 tons per day of solid waste were collected from the City of La Quinta.[29] A substantial amount of solid waste collected from the planning area is currently disposed of at the Edom Hill Landfill, which is operated by Riverside County and receives waste from communities throughout the Coachella Valley. A 1997 revision to the operating permit allows the landfill to receive an average of 1,153 tons per day and a maximum of 2,651 tons per day.[30] From August 31, 1998 to August 31, 1999, the Edom Hill Landfill received an average of 1,167 tons per day. The remaining capacity of the site is estimated at 1,900,097 tons, and the projected closure date for the landfill is the year 2004.[31]

Waste Management of the Desert has indicated its ability to provide services to future development associated with General Plan buildout.[32] With the Edom Hill Landfill nearing capacity, the City, County, and Waste Management of the Desert will need to evaluate potential disposal sites to accommodate solid waste from existing and future development.

Recycling Efforts

In an effort to reduce the amount of solid waste being generated, the State of California passed Assembly Bill 939 (AB 939) in 1989. The legislation requires that every city and county in California implement programs designed to recycle, reduce at the source, and compost 50% of their solid waste by the year 2000. Waste Management of the Desert operates a curb-side recycling program within the City and most of the planning area, which has substantially diverted recyclables from the waste stream. Recyclable materials, including glass, aluminum and newspaper are collected and transported to a recycling facility in Los Angeles, where they are later sold. The City's new franchise agreement will provide for the collection of co-mingled recycling using an automated system. In 1998, the City of La Quinta had an average curbside participation rate of 24%, which resulted in the collection of approximately 3,324 tons of recyclable solids and 628 gallons of recyclable oil.[33] Several privately operated recycling facilities are also located throughout the Coachella Valley and are available for public use.

Hazardous Waste

Hazardous wastes may be generated by a number of sources, including industrial, commercial and household operations. The production of hazardous waste is limited within the planning area, in part, because of the few industrial and warehouse operations contained therein. Pesticides and fertilizers are used on agricultural lands and golf courses. Commercial establishments, including gas stations, dry cleaners and pest control companies, are also known to use and produce limited quantities of hazardous waste.

The County does not operate a hazardous materials disposal program for industrial or commercial generators. However, the Environmental Health Department maintains a comprehensive list of local and regional contractors offering such services.[34]

Household Hazardous Waste

Within the planning area, hazardous wastes are typically produced by small-source household generators rather than large-scale industrial generators. To facilitate the collection of household wastes, the Riverside County Department of Environmental Health operates the ABOP facility in Palm Springs.[35] The facility accepts anti-freeze, batteries, waste oil and water-based paint. The Department also operates the Household Hazardous Waste program, which provides a mobile collection unit to communities throughout the Coachella Valley. The unit moves to various locations throughout the year and accepts all types of household hazardous waste, except for explosives bio-hazards, and radioactive materials.[36]

4.5.4 Storm Drainage [37]

The Coachella Valley Water District (CVWD) operates and maintains regional stormwater management facilities within the City of La Quinta. These facilities safely transport flows through the City and include the Coachella Valley Stormwater Channel and the La Quinta Evacuation Channel. In addition, a comprehensive system of storm drainage improvements has been installed adjacent to the Cove, which requires special protection from stormwater flows due to its proximity to the steep slopes of the Santa Rosa Mountains. The Bear Creek Channel, which extends along the western boundary of the Cove, and a series of retention and detention basins located east of the Cove, transport flows from the southern end of the Cove to the La Quinta Evacuation Channel.

The City operates and maintains storm drains within the rights-of-way of streets located in the Cove. These drains range from 18 to 60 inches in diameter and were recently retrofitted by the City.

There are currently six all-weather bridge crossings within the City. Two bridges are located on Washington Street, one of which crosses the Coachella Valley Stormwater Channel and one the La Quinta Evacuation Channel. Another bridge is located on Eisenhower Drive at the La Quinta Evacuation Channel. Three bridges cross the Coachella Branch of the All-American Canal at Jefferson Street, Avenue 50 and Avenue 52. The City is proposing to widen the Eisenhower Drive bridge at the Evacuation Channel. Widening of the

Washington Street bridge has been completed.[38] New bridges on Jefferson Street are currently under construction as part of the La Quinta/ Indio/CVAG "Ultimate Design" of Jefferson Street, Phase I.

Since its incorporation, the City has required that new development install on-site retention basins which are capable of managing runoff from the 100-year flood. Development located immediately adjacent to the Coachella Valley Stormwater Channel has the option of diverting its runoff directly into the Channel.

4.5.5 Electricity [39]

Electrical services are provided to the planning area by the Imperial Irrigation District (IID). IID operates five substations which serve the planning area, including the following:

1. North La Quinta Substation - located at the northwest corner of Adams Street and Westward Ho, abutting the Coachella Valley Stormwater Channel
2. La Quinta Substation - located at the southwest corner of Avenue 48 and Jefferson Street
3. Marshall Substation - located at the terminus of Washington Street and Avenida Ultimo
4. Jefferson Substation - located at the northeast corner of Avenue 52 and Jefferson Street
5. Avenue 58 Substation - located at the northwest corner of Avenue 58 and Monroe Street

The location of these substations is illustrated in Exhibit 4.4. All of the substations are rated at 92 kilovolts, with the exception of the Avenue 58 substation, which operates at 161 kilovolts. Voltage is decreased to 12 kilovolts for distribution to residences and other developments.

It is estimated that residential customers in the La Quinta area use an average of approximately 6,000 kilowatts per year. It is more difficult to estimate the average electricity usage for commercial users since commercial usage is largely based upon facility size and type of use. For this reason, an average calculation for commercial use would not be meaningful.

It is IID's objective to plan for and accommodate future development in order to avoid potential service deficiencies. IID has indicated its ability to provide service to future development associated with General Plan buildout and will address the demand for additional facilities as new development occurs. IID has identified the need for a new substation between the La Quinta city limits and Desert Resorts Regional Airport to meet future demands; however, the exact location of this substation has not yet been determined.

4.5.6 Telephone Service [40]

Verizon California provides a variety of basic and state-of-the-art telephone services to the planning area. Verizon California is headquartered in Thousand Oaks, but local service facilities are located in Palm Springs and Indio. Verizon California plans its facilities to accommodate future growth and often oversizes its infrastructure to allow for increased capacity. The company will be capable of providing telephone service to the planning area upon buildout and will assess the need for additional facilities as development occurs.

4.5.7 Natural Gas [41]

The Gas Company provides natural gas service to the planning area through a network of pipelines of varying sizes and pressure capacities. Natural gas is transported to the region through high-pressure transmission lines located north of Interstate-10. Transmission lines are 36-inch lines with pressure levels ranging from 400 psi to 700 psi. Pressure from these lines is reduced at various limiting stations, which transfer the gas to supply lines. Supply lines are steel pipes ranging in size from 2 to 8 inches and operating at 175 to 400 psi. Within the planning area, supply lines are generally located the planning area, supply lines are generally located within the Washington Street, Highway 111, and Harrison Street rights-of-way. Pressure from these lines is reduced at regulator stations, which transfer natural gas to distribution lines for delivery to individual homes and businesses. Distribution lines are 2 to 4-inch steel or plastic pipes which operate at 45 to 55 psi.

The existing network of natural gas lines provides adequate service to the majority of the planning area. However, natural gas service is currently limited south of Airport Boulevard. The availability

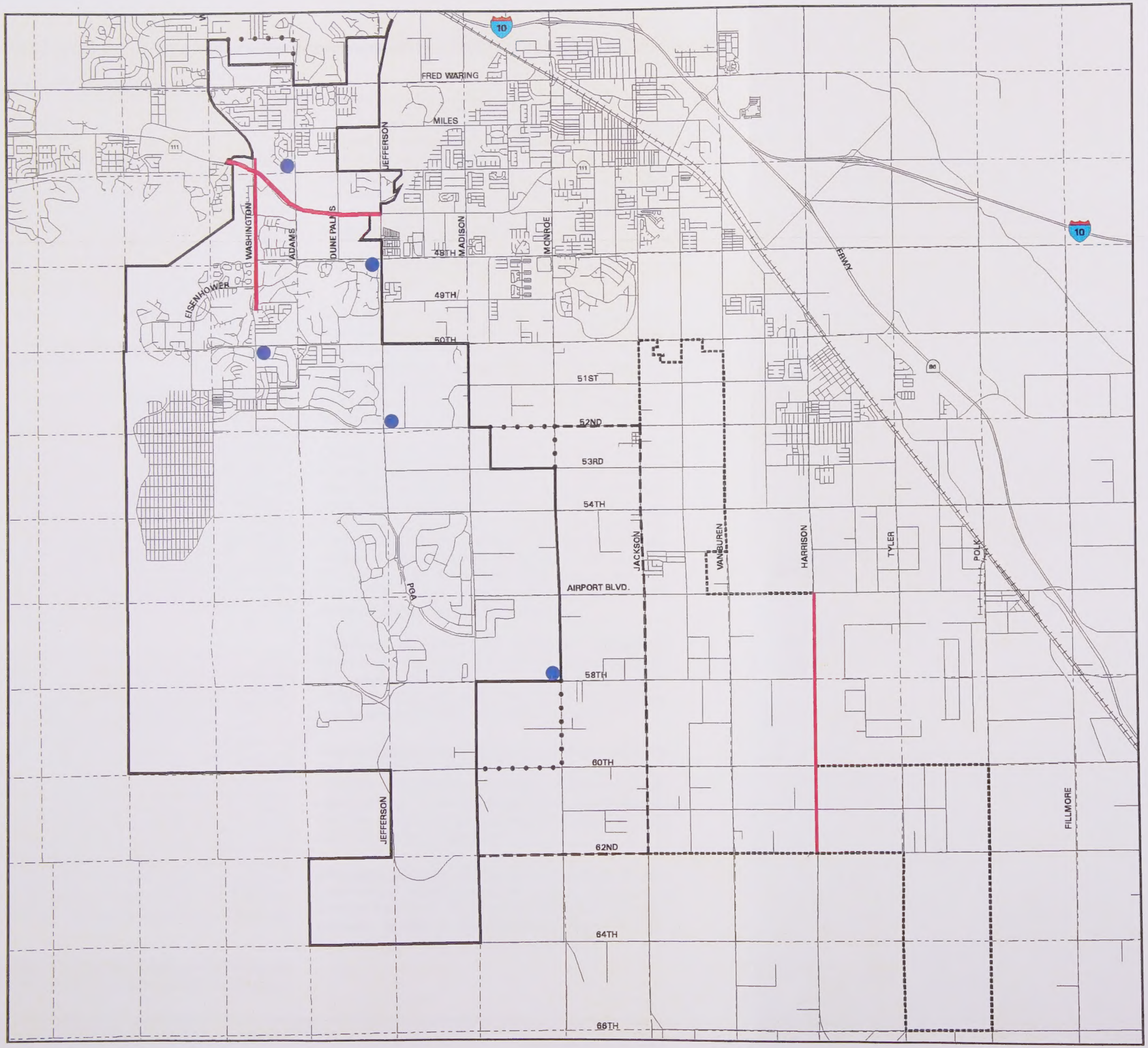
of natural gas is also limited in the Cove, where gas is available only to structures generally located north of Calle Chihuahua.[42] Natural gas service is not available to development located south of Calle Chihuahua; many residents in these locations use propane gas as an alternative means of fuel. The location of major natural gas lines in the planning area are illustrated in Exhibit 4.4.

The Gas Company works closely with developers to accommodate service extensions, and has indicated that it will be able to provide service to the anticipated buildout population.[43]

4.5.8 Cable

Cable television service is provided to the planning area by AOL-Time Warner, whose local service office is located on Farrell Drive in Palm Springs. Cable service is provided to the City through a franchise agreement, which is renegotiated every 15 years; the last franchise agreement was approved in 1996.[44] Time Warner uses both overhead and underground lines to provide cable channels and improved television reception to individual residences and businesses. It accommodates additional growth as new development occurs, and will be able to provide services to the anticipated buildout population.

City of La Quinta General Plan



LEGEND

- Roads
- Township/Range Sections
- Railroads
- City Limits
- Planning Area #1
- Planning Area #2
- City Sphere of Influence

EXHIBIT 4.2
MAJOR NATURAL GAS AND ELECTRIC POWER FACILITIES IN THE PLANNING AREA

- Electrical Substation
- High Pressure Natural Gas Lines (pressures of 175 - 700 psi)

Source: IID and The Gas Company, 1999.

Scale
1:72,000

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Feet

N
NORTH

Riverside County Vicinity Map

Map Prepared on: December 14, 2001
Map Prepared by: Aerial Information Systems
Map Version No.: 6

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5.0 Natural Resources

5.1 Air Quality

Although air quality continues to be a major concern in southern California and the Coachella Valley, regional air quality levels have shown marked improvement in recent years. In relation to other southern California communities, the City of La Quinta has essentially good air quality. Continued implementation of air quality management programs, and a local commitment to reducing city-wide pollutants, will have long-term beneficial impacts on regional air quality.

5.1.1 Air Quality Management and Regulation

Federal and state governments have established air quality standards for a variety of pollutants. In 1971, the Environmental Protection Agency (EPA) established its National Ambient Air Quality Standards (NAAQS). The California Clean Air Act (CCAA) became effective on January 1, 1989 and mandated health-based state air quality standards. The California Air Resources Board (CARB) developed the state standards, which are generally more stringent than federal standards. State implementation plans (SIPs) may also be prepared to help regional air management districts meet the requirements of the federal Clean Air Act (CAA) and California Clean Air Act.

Regional and local agencies have assumed some responsibility for assuring that air quality standards are achieved. The City of La Quinta and the surrounding Coachella Valley are located within the Salton Sea Air Basin (SSAB). The South Coast Air Quality Management District (SCAQMD) is responsible for establishing air quality measurement criteria and relevant management policies for the SSAB and neighboring air basins. The City of La Quinta is subject to the 1997 SCAQMD Air Quality Management Plan, which sets forth policies and other measures designed to help the District achieve federal and state ambient air quality standards. The 1997 Plan is intended to satisfy the planning requirements of both the Federal Clean Air Act and the California Clean Air Act.

The SCAQMD also monitors daily pollutant levels and meteorological factors throughout the District. Over the past 30 years, ozone levels have been reduced by half, sulfur dioxide and lead standards have been met, and other pollutants have declined substantially.[45] However, ozone, carbon monoxide and particulate matter levels within areas under the District's jurisdiction continue to exceed federal and state ambient air quality standards.[46]

5.1.2 Pollutants and Associated Health Effects

In an effort to protect public health, federal and state ambient air quality standards have been established for the following pollutants: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, lead and suspended particulate matter. A description of each pollutant and its associated health impacts is provided below.

Ozone (O_3) is formed when byproducts of the internal combustion engine react in the presence of ultraviolet sunlight. Ozone is a pungent, colorless, toxic gas, commonly referred to as smog. Although also produced within the Coachella Valley, most ozone pollutants are transported by coastal winds from Los Angeles County and the Riverside and San Bernardino areas into the Coachella Valley, thereby contributing to high ozone concentrations in the valley.[47]

Exposure to ozone can result in diminished breathing capacity, increased sensitivity to infections, and inflammation of lung tissue. Children and people with pre-existing lung disease are most susceptible to the effects of ozone.[48]

Carbon Monoxide (CO) is a colorless, odorless gas emitted by automobiles and other motor vehicles. In high concentrations, carbon monoxide can contribute to the development of heart disease, anemia, impaired psychological behavior, and reduction in birth weight.[49]

Nitrogen Dioxide (NO_2) is a byproduct of fuel combustion which acts as an irritant. Because it absorbs blue light, high concentrations of nitrogen dioxide leave a brownish-red haze in the atmosphere, thereby reducing visibility.[50]

Short-term exposure to nitrogen dioxide can result in airway contraction in healthy individuals, and diminished lung capacity in individuals with asthma or chronic obstructive pulmonary disease. Long-term exposure to nitrogen dioxide can result in an increase in acute respiratory illness, including infection of the lung tissue.[51]

Sulfur Dioxide is a colorless, pungent and extremely irritating gas which results from the combustion of high-sulfur content fuels, such as coal and oil. Short-term exposure to sulfur dioxide can result in airway constriction and severe breathing difficulties in asthmatics. High levels of exposure can cause fluid accumulation in the lungs and lung tissue damage.[52]

Lead (Pb) occurs in the atmosphere as particulate matter resulting from leaded gasoline, and the manufacturing of batteries, paint, ink and ammunition.[53] The elimination of leaded gasolines in recent years has reduced the hazards associated with airborne lead.
Infants and children are generally more susceptible than others to the health effects of lead exposure. Exposure to lead can result in anemia, kidney disease, gastrointestinal dysfunction and seizures.[54] In severe cases, neuromuscular and neurologic disorders can occur.

Particulate Matter (PM10) consists of fine suspended particles of ten microns or smaller in diameter, which are byproducts of road dust, sand, diesel soot, wind storms and the abrasion of tires and brakes. PM10 is one of most prevalent forms of pollution in the Coachella Valley and is associated with strong desert winds, as discussed in more detail below.

Fine particulate matter poses a significant threat to public health. The elderly, children and adults with pre-existing respiratory or cardiovascular disease are most susceptible to the effects of PM10. More than half the smallest suspended particles can be inhaled and deposited in the lungs, resulting in permanent lung damage.[55] Elevated PM10 levels are also associated with an increase in respiratory infections and occurrences of asthma attacks.

Existing federal and state standards have been directed at reducing particulate matter of 10 microns or smaller. However, new standards are being considered for particles of 2.5 microns or smaller.

State and federal ambient air quality standards for each of these pollutants are shown in Table 5.1. State standards are generally more restrictive than federal standards.

5.1.3 Regional Pollutants of Concern

Ozone and PM10 are the most prevalent pollutants in the Coachella Valley and the City of La Quinta. Air pollution in the Coachella Valley is the result of a variety of regional activities, including construction and grading, automobile traffic, and the operation of furnaces and other heating, cooling and ventilation equipment. However, a substantial amount of the pollution in the Coachella Valley can be attributed to local geographic and climatic conditions.

PM10 Emissions
The Coachella Valley is a low-lying desert basin characterized by low annual rainfall (±4.0 inches) and low humidity. The valley is surrounded on the north, west and south by mountain ranges which physically isolate it from coastal influences. Temperatures can exceed 120° Fahrenheit during summer months. As daily temperatures rise, cooler coastal air is drawn through the narrow San Gorgonio Pass to the west, generating strong winds that cross the most active erosion zones in the valley. Stronger winds (±20 mph) typically occur during spring and summer months. Large quantities of desert sand and dust are transported throughout the valley, reducing visibility, damaging property and threatening public health.

Table 5.1
State and Federal Ambient Air Quality Standards

Pollutant	State Standards		Federal Standards	
	Averaging Time	Concentration	Averaging Time	Concentration
Ozone	1 hour	0.09 ppm	1 hour	0.12 ppm
Carbon Monoxide	1 hour	20.0 ppm	1 hour	35 ppm
	8 hours	9.0 ppm	8 hours	9.0 ppm
Nitrogen Dioxide	1 hour	0.25 ppm	annually	0.053 ppm
Sulfur Dioxide	1 hour	0.25 ppm	annually	0.03 ppm
	24 hours	0.04 ppm	24 hours	0.14 ppm
Lead	30 days	1.5$\mu g/m^3$	calendar quarter	1.5$\mu g/m^3$
Suspended Particulate Matter	24 hours	50$\mu g/m^3$	24 hours	150$\mu g/m^3$
	AGM	30$\mu g/m^3$	AAM	50$\mu g/m^3$

Notes: ppm = parts per million
$\mu g/m^3$ = micrograms per cubic meter of air
AGM = Annual Geometric Mean
AAM = Annual Arithmetic Mean

Source: "1997 Air Quality Management Plan," South Coast Air Quality Management District.

This process of natural sand migration, referred to as "blowsand," generates two types of PM10 emissions: (1) natural PM10, produced by direct particle erosion and fragmentation, and (2) secondary PM10, in which sand is deposited on road surfaces, ground into smaller particles by motor vehicles, and re-suspended in the air by those vehicles. CVAG has designated a portion of the Coachella Valley which is subject to high levels of blowsand activity as an "Active Blowsand Hazard Area."

The Coachella Valley has a history of elevated PM10 levels, which are closely associated with local fugitive dust emissions. In November 1990, amendments to the federal Clean Air Act (CAA) were adopted. The amendments required that the State Implementation Plan for PM10 be revised to incorporate "reasonably available control measures" for PM10, and to establish a future attainment date for all areas that were previously unable to meet federal PM10 standards.[56] In response to this requirement, the South Coast Air Quality Management District adopted the "State Implementation Plan for PM10 in the Coachella Valley" (90-CVSIP). In January 1993, the Coachella Valley was reclassified from "moderate" to "serious" non-attainment area by the U.S. EPA.[57]

The Coachella Valley Association of Governments (CVAG) and its member cities have worked closely with one another to implement the PM10 reduction and control measures established by the 90-CVSIP. Examples of control measures implemented by local governments include the following:

- reducing the amount of blowsand generated through the use of chemical stabilizers, site watering, and the installation of landscape treatments
- adopting City-based dust control ordinances
- implementing street cleaning programs

In 1996, a natural events policy was released by the U.S. EPA which exempts certain high wind events which cause PM10 air quality exceedances from being counted as violations. This has reduced the number of federal PM10 exceedances for the Coachella Valley. Although the Coachella Valley achieved federal PM_{10} standards for several years

in the mid-1990s, it was unable to do so for a sufficient, extended period of time. The region continues to be designated a "serious" non-attainment area for PM_{10}, with grading and construction activity representing the most significant source of regional fugitive dust emissions.

In an effort to remedy this situation, SCAQMD and CVAG jointly developed the "Guidelines for Dust Control Plan Review for Coachella Valley Jurisdictions in November 2000. The guidelines are intended to supplement local dust control ordinances and assist local government staff in reviewing dust control plans submitted for construction projects in the valley, In addition, SCAQMD and CVAG are employing a PM_{10} Air Quality Inspector, who will advise and coordinate with developers and city staff regarding site-specific methods of reducing local PM_{10} emissions. Should the region continue to fall short of federal standards, the EPA could impose more stringent regulations or sanctions.

Local Monitoring
The South Coast Air Quality Management District operates and maintains regional air quality monitoring stations at numerous locations throughout the region. The City of La Quinta is located within Source Receptor Area (SRA) 30, which includes monitoring stations in Palm Springs and Indio. Data collected at the Indio monitoring station are most representative of the air quality conditions in the City of La Quinta.

Table 5.2 shows the maximum concentration of PM10, and number of days exceeding state and federal standards in the Coachella Valley from 1990 to 2000.

Ozone Emissions
The Coachella Valley also has a history of exceeding ozone standards, although the number of days and months exceeding the federal one-hour ozone standard have dropped steadily over the past decade. The Coachella Valley is classified as a "severe-17" ozone non-attainment area under the Clean Air Act. The area must comply with federal ozone air quality standards by November 15, 2007, 17 years from the date of the federal Clean Air Act.[58]

Although some ozone is produced locally by motor vehicles and other sources in the Coachella Valley, ozone monitoring data indicate that federal ozone standard exceedances in the Coachella Valley are largely the result of pollutant transport from the South Coast Air Basin, located west of the Coachella Valley.[59] Pollutant transport pathways from the South Coast Air Basin, through the Banning Pass, into the Coachella Valley have been identified and monitored.[60] It is difficult to effectively quantify the total amount of pollutants contributed from other regions. Nonetheless, improved air quality in the Coachella Valley is partly dependent upon reduced ozone emissions in the South Coast Air Basin.

Ozone levels at the Palm Springs and Indio air quality monitoring stations from 1990 to 2000 are illustrated in Table 5.3.

At this time, the levels of other pollutants in the Coachella Valley are not considered detrimental to public health.

5.1.4 Pollutant Control Measures Implemented by the City of La Quinta

The City of La Quinta adopted a Fugitive Dust Control Ordinance in December 1992. The ordinance is intended to reduce local fugitive dust and PM10 emissions, and establishes minimum dust control requirements for construction and demolition activities.[61] Some of the dust control measures established by the ordinance include submitting dust mitigation plans, limiting vehicle speeds on unpaved roads, and installing wind fencing and on-site wheel washers at construction sites.

The City also participates in regional air pollution reduction measures. Each quarter, the City contributes approximately one-third of its vehicle licensing fees, which are collected as part of the Mobile Source Air Pollution Reduction Fund, to the Coachella Valley Association of Governments (CVAG).[62] CVAG applies these contributions to regional air quality improvement measures, including a street sweeping program implemented by the Sunline Transit Agency.

Table 5.2
Coachella Valley Air Quality Trends
Exceedances of (PM_{10}) Standards

Monitoring Station	Year	Max. Concentration ($\mu g/m^3$/24 hours)	No. (%) Samples Days Exceeding 24-hr. Standards		Annual Average ($\mu g/m^3$)	
			Federal[1]	State[2]	AAM[3]	AGM[4]
Palm Springs	1990	83	0(0.0%	9(15.3%)	34.5	30.5
	1991	197	1(1.8%)	14(25.0%)	42.9	36.6
	1992	175	1(1.7%)	4(6.7%)	29.6	24.3
	1993	58	0(0.0%)	1(1.7%)	27.0	23.6
	1994	97	0(0.0%)	23(38.3%)	48.7	45.3
	1995^	199	1(1.6%)	27(44.3%)	52.0	47.2
	1996	130	0(0.0%)	2(3.3%)	29.3	25.2
	1997a)	63	0(0.0%)	1(1.8%)	26.4	23.6
	1998	72	0(0.0%)	3(5.2%)	26.4	23.8
	1999	104	0(0.0%)	3(5.0%)	28.8	26.1
	2000	44	0(0.0%	0(0.0%)	24.4	22.7
Indio	1990	520	4(6.8%)	41(69.5%)	79.3	64.9
	1991	340	3(5.1%)	37(62.7%)	69.0	59.8
	1992	117	0(0.0%)	18(30.5%)	43.4	39.2
	1993	125	0(0.0%)	25(41.0%)	46.4	40.6
	1994	97	0(0.0%)	23(38.3%	48.7	45.3
	1995^	199	1(1.6%)	27(44.3%)	52.0	47.2
	1996*	117	0(0.0%)	29(50.0%	50.8	46.1
	1997a)*	144	0(0.0%)	23(42.6%)	49.1	44.2
	1998	114	0(0.0%)	32(40.0%)	48.1	43.8
	1999	119	0(0.0%)	30(54.0%)	52.7	49.8
	2000*	114	0(0.0%)	52(50.0%)	51.9	48.4

1 => $150\mu g/m^3$ in 24-hour period
2 => $50\mu g/m^3$ in 24-hour period
3 Federal Annual Average Standard = AAM > $50\mu g/m^3$
4 State Annual Average Standard = AAM > $30\mu g/m^3$
^ Includes high-wind natural event days.
a) Less than 12 full months of data; may not be representative.
* Data for samples collected on high-wind days were excluded in accordance with EPA's Natural Events Policy
Source: Annual air quality site monitoring reports prepared by South Coast Air Quality Management District.

Table 5.3
Coachella Valley Air Quality Trends
Exceedances of Ozone Standards

Monitoring Station	Year	Max. Concentration in One Hour	No. Days Standard Exceeded	
			Federal[1]	State[2]
Palm Springs	1990	0.17 ppm	27	73
	1991	0.18 ppm	22	72
	1992	0.15 ppm	21	69
	1993	0.17 ppm	20	79
	1994[3]	0.17 ppm	13	71
	1995[3]	0.16 ppm	12	60
	1996	0.16 ppm	12	60
	1997	0.16 ppm*	4*	45*
	1998	0.17 ppm	8	40
	1999	0.13 ppm	1	27
	2000	0.12 ppm	0	40
Indio	1990	0.16 ppm	10	47
	1991	0.18 ppm	13	48
	1992	0.14 ppm	8	45
	1993	0.16 ppm	3	25
	1994[3]	0.17 ppm	13	71
	1995[3]	0.16 ppm	9	49
	1996	0.12 ppm	0	26
	1997	0.11 ppm	0	3
	1998	0.13 ppm	2	16
	1999	0.13 ppm	1	13
	2000	0.11 ppm	0	43

[1] > 0.12 parts per million in 1 hour
[2] > 0.09 parts per million in 1 hour
[3] Palm Springs and Indio ozone levels represented as a single Coachella Valley data value in SCAQMD annual. reports. Values in this table represent the highest recorded at either station.
* Less than 12 full months of data; may not be representative.
Source: Annual air quality monitoring reports prepared by South Coast Air Quality Management District.

5.2 Energy Resources

Energy resources are an integral part of residential, commercial and industrial land uses and are particularly important to the success and efficiency of transportation systems. The Coachella Valley typically experiences high mean annual temperatures, creating a substantial need for air conditioning and related electrical energy demand. To a lesser extent, the valley also consumes large quantities of natural gas for space heating, hot water, the preparation of food, and industrial process heating.

Relatively high regional energy costs, a competitive economic environment, and opportunities for energy conservation encourage the development and use of alternative energy resources in the Coachella Valley. The manner in which energy is developed, used and conserved directly impacts local and regional air quality, the viability of local ecosystems and public health.

5.2.1 Electrical Power Service

In 1998, the State of California implemented legislation that deregulated its electric power industry. The primary goals of deregulation were to enhance competition in the electric industry and expand customers' service choices. The legislation mandated rate reductions from some electric companies and allowed consumers of large, investor-owned utilities the option to choose alternative electricity providers. Smaller, community-owned utilities (like IID) were not required to offer their customers alternatives at that time.

The legislation froze rates charged by investor-owned utilities at 1996 price levels. However, by winter 2000, a significant price gap emerged between wholesale electricity prices and maximum retail prices utilities were permitted to charge. Wholesale prices typically exceeded the maximum permitted retail prices, making it cheaper not to provide electricity to consumers. As a result, many California communities experienced rolling blackouts to save on the state's power grid. Coachella Valley customers that had signed up for voluntary service interruptions, in exchange for price discounts, also experienced occasional power outages.

A true electric power supply problem may also exist in California, and the demand for electricity in California appears to be outstripping the combination of state and interstate electricity supplies. Interstate suppliers that sold electricity to California utilities in the past have experienced low winter temperatures and precipitation in recent years. As a result, hydroelectric and other power resources are not as readily available as they once were. There also appear to be some regulatory barriers to the construction of new power plants in California. Significant federal and state participation in the environmental review process makes permitting difficult in some cases, particularly where applicable air and water quality standards must be met.

The cost of electricity can have a substantial impact on business, and its affordability through reasonable rates and energy conservation incentives is essential to the economic viability of the community. The majority of electric power services are currently provided to the planning area by the Imperial Irrigation District (IID). There are several advantages to being served by IID, as opposed to other electrical providers in the Coachella Valley. IID is a not-for-profit taxing district with rates that are based strictly on the costs associated with providing adequate infrastructure and services to its customers. As a result, IID customers generally experience lower rates than customers using other private electric companies.

Electricity is transmitted to the planning area by IID through high voltage lines and step-down transformers at five substations, in the following locations[63]:

- North La Quinta Substation, at the northwest corner of Adams Street and Westward Ho.
- La Quinta Substation, at the southwest corner of Avenue 48 and Jefferson Street
- Marshall Substation, at the terminus of Avenida Ultimo at Washington Street
- Jefferson Substation, at the northeast corner of Avenue 52 and Jefferson Street
- Avenue 58 Substation, at the northwest corner of Avenue 58 and Monroe Street

Each of the substations is rated at 92 kilovolts, except for the Avenue 58 substation, which operates at 161 kilovolts.[64] For distribution to individual

residences, businesses and other establishments, voltage is decreased to 12 kilovolts.

IID plans for and accommodates new development in order to avoid potential service deficiencies. IID has indicated that it is capable of providing cost-effective service extensions to future development in the planning area.[65]

5.2.2 Natural Gas Service

Natural gas is generated in association with petroleum crude oil deposits. It is generally considered a clean and efficient fuel, but nonetheless emits a wide range of air pollutants. Natural gas is typically used for space heating, cooking, hot water for homes and businesses and industrial process heating. It is also gaining popularity as an alternative motor vehicle fuel. The Sunline Transit Agency operates its entire mass transit fleet on compressed natural gas (CNG).

The Gas Company provides natural gas to the General Plan planning area. High pressure transmission lines located north of Interstate-10 transport natural gas to the Coachella Valley. Transmission lines are 36-inch lines with pressure levels ranging from 400 to 700 pounds per square inch (psi).[66] Natural gas is then transferred at various limiting stations to supply lines. Supply lines are steel pipes ranging in size from 2 to 8 inches in diameter and operating at 175 to 400 psi.[67] Within the planning area, supply lines are generally located within the rights-of-way of Washington Street, Highway 111 and Harrison Street. Pressure is further reduced at regulator stations, and natural gas is transferred to distribution lines, which are 2 to 4-inch steel or plastic pipes. Distribution lines deliver natural gas to individual homes and businesses at 45 to 55 psi.[68]

Natural gas service is provided to only a limited number of customers located south of Airport Boulevard and in the Cove neighborhood of La Quinta; however, the existing network of natural gas lines provides adequate service to the remainder of the planning area. The Gas Company works closely with developers and municipalities to accommodate service and infrastructure extensions.

5.2.3 Energy Resource Consumption

Per capita and per household consumption of electricity and natural gas varies widely with use, and precise consumption figures for the Coachella Valley are not readily available. However, the South Coast Air Quality Management District has established a set of average consumption usage rates for various land use types which can be used to estimate energy consumption in the planning area.

The City's largest consumer segment consists of residential energy users. According to the SCAQMD, the average residence uses approximately 5,627 kilowatt-hours of electricity per year and about 79,980 cubic feet of natural gas per year.[69]

5.2.4 Energy Management Programs and Incentives

The Imperial Irrigation District offers several energy conservation incentives and rebates to its customers. Residential customers who install new high-efficiency heat pumps or evaporative water coolers in their main dwelling units are eligible for rebates, subject to certain restrictions established by IID.[70] In addition, a ten percent discount is offered to eligible low-income residents. Commercial customers who are capable of demonstrating a year-round, high usage rate (greater than 3,000 kwh per month) can also apply for a reduced rate.[71]

The Gas Company offers several programs to qualifying low-income residents, including furnace inspection and repair services. The weatherization program is also available to low-income residents. It includes a home inspection and the installation of such energy-saving measures as weather-stripping and furnace insulation wraps.[72] The Gas Company also offers energy-saving tips and other energy conservation recommendations to its residential customers through the Home Energy Fitness Program.[73]

5.2.5 Renewable and Non-Renewable Energy Resources

The generation of electricity is generally dependent upon the consumption of non-renewable energy resources. The burning of fossil fuels not only reduces the long-term availability of important

energy resources, but also contributes to the production of air pollutants, hazardous waste materials and global warming. With the rapid depletion of non-renewable energy resources, there is an increasing need to develop and utilize reliable, cost-effective alternative energy resources.

Abundant sunshine and high winds in the Coachella Valley help support the regional production of renewable solar and wind-generated electricity. Solar thermal systems are used locally to provide domestic hot water and to heat swimming pools. Passive solar designs are also being used to provide natural lighting and space heating. The City of La Quinta, which receives direct, intense sunlight throughout much of the year, is well situated to take advantage of solar thermal technologies.

The City is not as well suited, however, for wind energy generation. The northwestern portion of the Coachella Valley, in the vicinity of the San Gorgonio Pass, is subject to consistently high winds and is considered part of the San Gorgonio Wind Resource Area. This area has proven to be an economically viable wind resource. Although the development of wind-generated energy does not directly affect the City or its land use policies, it nonetheless remains an important regional energy resource.

5.3 Mineral Resources

The excavation of mineral resources can have significant environmental impacts, particularly in desert areas, where evidence of surface mining can remain for centuries if not properly reclaimed through grading and replanting.

Over time, the deep, fault-controlled Coachella Valley has been filled with eroded materials from surrounding hills and mountains. As a result, the mineral resources found within the desert floor are largely limited to sand and gravel. Other regional mineral deposits include copper, limestone and tungsten, which occur in rocky outcroppings in the Little San Bernardino and Santa Rosa Mountains, but have not been mined.

The California Surface Mining and Reclamation Act (SMARA) of 1975 provides for a state-wide mineral lands classification process, which identifies regionally significant mineral deposits. The information provided assists local agencies in making land use decisions that provide for the conservation and development of mineral resources.

In 1988, the State of California Department of Conservation, Division of Mines and Geology released a report identifying aggregate materials in the Palm Springs Production-Consumption Region, which includes the General Plan planning area. The location of each Mineral Resources Zone within the planning area is shown on Exhibit 5.. The following Mineral Resource Zones (MRZ) are found within the planning area:

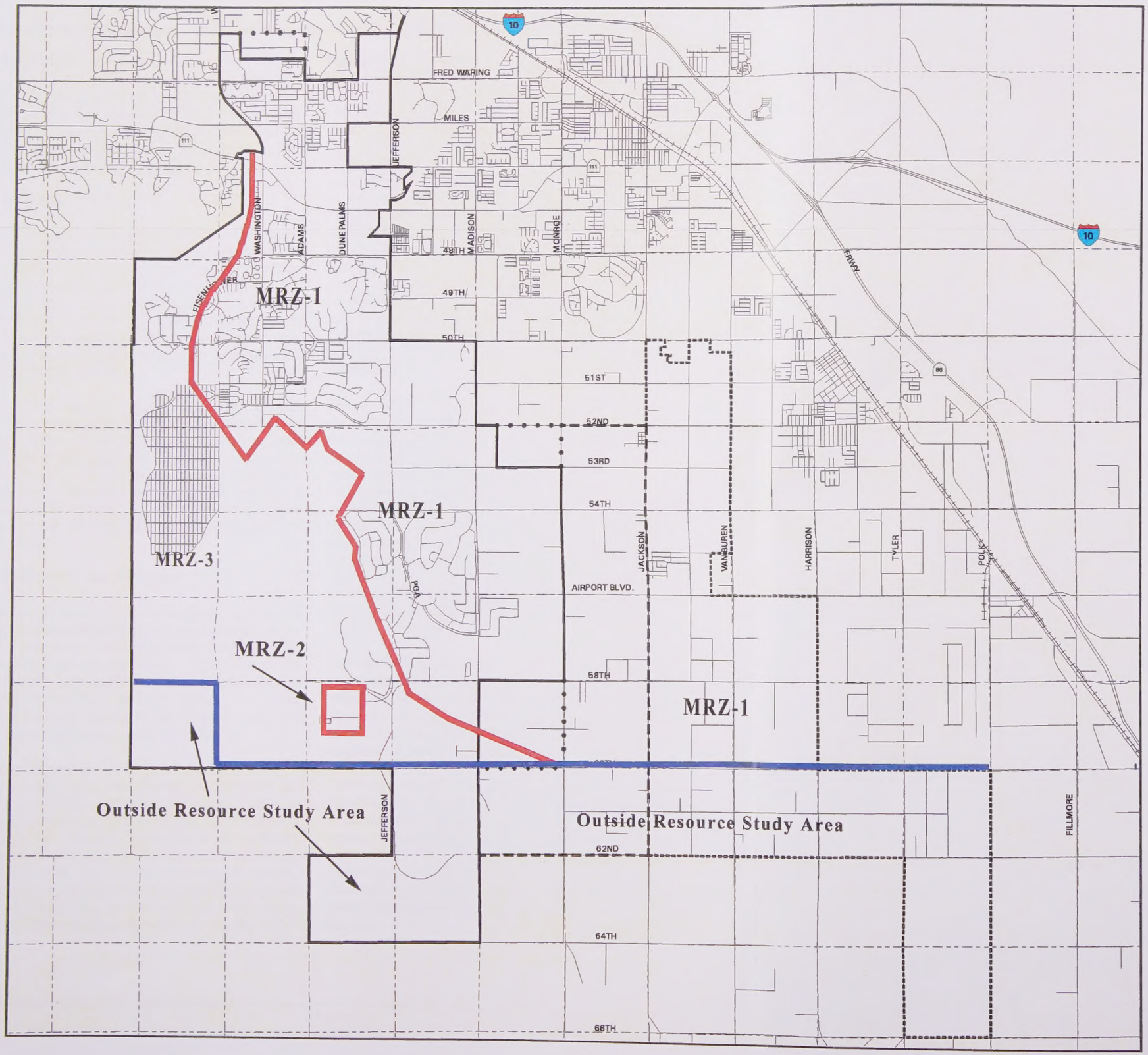
MRZ-1: Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.

MRZ-2: Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists.

MRZ-3: Areas containing mineral deposits, the significance of which cannot be evaluated from available data.

The majority of the planning area lies within MRZ-1, which indicates the presence of little or no mineral resources. The Santa Rosa Mountains lie within MRZ-3. A small area located just southwest of Lake Cahuilla lies within MRZ-2. This site once served as a sand and gravel mine, but now consists of a planned residential golf course development known as The Quarry. No other mineral production sites are currently in operation in the planning area.

City of La Quinta General Plan



LEGEND

- Roads
- Township/Range Sections
- Railroads
- City Limits
- Planning Area #1
- Planning Area #2
- City Sphere of Influence

EXHIBIT 5.1
MINERAL RESOURCES IN THE PLANNING AREA

- Mineral Resource Zone Boundary
- Resource Study Area Boundary

Source: California Dept. of Conservation, Division of Mines and Geology, Special Report #159, 1998.

Scale
1:72,000

0 5,000 10,000 15,000
Feet

NORTH

Riverside County Vicinity Map

Map Prepared on: December 14, 2001
Map Prepared by: Aerial Information Systems
Map Version No.: 6

TERRA NOVA Planning & Research, Inc.

5.4 Biological Resources

The following discussion is largely based upon the biological assessment prepared for the La Quinta General Plan Update by Tierra Madre Consultants, Inc.[74] The report is included in its entirety in the Appendix of the General Plan EIR.

5.4.1 Regional Setting

The City of La Quinta is located at the western edge of the Colorado Desert subdivision of the Sonoran Desert. The San Jacinto, San Bernardino and Santa Rosa Mountains effectively isolate the Coachella Valley region from moderating coastal influences from the west. As a result, the region is characterized by extremely hot daily temperatures during the summer, mild winters, low humidity and low mean annual rainfall.

The desert floor supports sparse vegetation, limited by heat and aridity. However, the regional climate becomes milder with increasing elevation, and regional mountain slopes are capable of supporting more vegetation. Canyons and springs support native fan palm communities and a wide variety of other plants and animals. The specific habitat types occurring within the General Plan planning area are described below.

5.4.2 Habitat in the Planning Area

Habitat is defined as an ecological system or network of interrelationships between living things. Biological resources, including plants and animals, are integral parts of a habitat. The City of La Quinta and the General Plan planning area contain a variety of unique habitat types, including blowsand habitat, mesquite hummocks, alluvial habitat, desert dry wash, and rocky slopes.

Blowsand Habitat
Blowsand deposits are found throughout the northern part of the planning area, particularly in the northern portions of La Quinta. This region is dominated by habitats comprised of shifting, windblown sand supporting sparse vegetation. Blowsand habitat, also referred to as aeolian habitat, in the planning area has been significantly altered by the shielding effects of windbreaks, buildings, roads and landscaping in upwind areas to the west. Blowsand is critical to a number of special-status plant and wildlife species, including the Coachella Valley Fringe-toed Lizard, the flat-tailed horned lizard, flat-seeded spurge and the Coachella Valley milk-vetch. Other endemic species include the Coachella giant sand treader cricket, Coachella Valley Jerusalem cricket, sandroach and the giant red velvet mite. Sand sheets, dunes and hummocks within the boundaries of the Coachella Valley Fringe-toed Lizard Habitat Conservation Plan do not need surveys to detect the presence of the fringe-toed lizard, since they are already known to provide habitat for the species. These lands are also presumed to be occupied by, or provide occupiable habitat for the flat-tailed horned lizard and giant sand-treader cricket, as well as the Coachella Valley milk-vetch, although the eastern and southern range limits of this species are not well defined.

Most lands above the ancient Lake Cahuilla shoreline north of Avenue 50 include a natural community of plants known as stabilized shielded desert sand fields. These lands are comprised of windblown sand lacking dune formations, that are stabilized by vegetation. This natural community contains habitat for plants such as flat-seeded spurge and declining habitat for the federally endangered Coachella Valley milk-vetch. Although the possibility of the Coachella Valley milk-vetch occurring in this type of habitat is high, the planning area is located at or just beyond the eastern edge of the known range of the Coachella Valley milk-vetch.

Mesquite Hummocks
Mesquite hummocks are a natural plant community which consists of large clumps of honey mesquite formed over sand dunes or level terrain. Mesquite hummocks are generally associated with high soil moisture or natural springs.

Saltbush, alkali goldenbush and tamarisk occur between the mesquites in the alkaline soils of the southwestern portion of the planning area. Animal species supported by mesquite hummocks include native birds, including verdin, phainopepla, black-tailed gnatcatcher, and the sensitive LeConte's thrasher and crissal thrasher. The Palm Springs round-tailed ground squirrel is also found in this habitat.

Nearly all the mesquite hummocks in the study area have been isolated, fragmented and degraded by vehicle tracks and illegal dumping. They are not considered viable long-term conservation areas.

Alluvial Habitat
Alluvial plain habitat is typically comprised of sandy and gravelly bajadas and flood-formed fans which extend from canyon mouths to the desert floor. Sonoran creosote bush scrub and Sonoran mixed woody and succulent scrub are the dominant plant communities occurring on alluvial plains.

Sonoran creosote bush scrub is the most common natural plant community in the Coachella Valley. It is dominated by creosote bush, burrobush, brittlebush and a high proportion of annual wildflowers. In the planning area, this community occurs above the shoreline of ancient Lake Cahuilla.

The Sonoran mixed woody and succulent scrub natural plant community is dominated by brittlebush, creosote bush, indigobush, catclaw acacia, rock daisy, and several species of cacti. Sensitive species include California ditaxis and glandular ditaxis. In the planning area, this community occurs on the lower slopes of the Santa Rosa and Coral Reef Mountains.

Desert Dry Wash
Desert dry washes provide an important ecological connection between mountains and the valley floor. As washes emerge from canyon mouths, they cut channels into the alluvial slope, which broaden and branch out into intertwined or braided washes. In the planning area, desert washes are found in alluvial fans below the canyons of the Santa Rosa and Coral Reef Mountains. The Whitewater River, which drains large areas of the San Jacinto, Santa Rosa and San Bernardino Mountains, can also be considered a desert dry wash. Although its habitat areas are regularly disturbed and/or eliminated by periodic channel maintenance, this managed drainage still harbors a variety of plants and wildlife.

Characteristic plant species of the desert dry wash include smoke tree, palo verde and cheesebush. Common shrubs include chuperosa, sweetbush, desert lavender, sandpaper plant and bladderpod. Shallow-rooted species, particularly cacti, are generally absent from desert washes, given their easy removal by stormwater and their slow rates of growth and reestablishment.

Desert wash habitat is important habitat for several species of lizards and snakes, as well as a variety of nocturnal rodents. Typical bird species include verdin, phainopepla and black-tailed gnatcatcher.

Rocky Slopes Habitat
Rocky slopes occurring within and near the planning area include the foothills of the Santa Rosa and Coral Reef Mountains. This habitat is characterized by weathered and fractured bedrock, some of which has been broken and displaced and occurs as loose debris of stone, pebbles and sand.

The rocky slopes of the Santa Rosa and Coral Reef Mountains offer suitable habitat for a wide variety of common perennials, including creosote bush, brittlebush, burrobush and agave. Other common plant include ocotillo, spike moss, arrowleaf, pigmy cedar, bushy cryptantha and rush pea. Sensitive species include the glandular ditaxis. Plant sizes and densities generally increase with elevation and associated increases in annual rainfall.

A variety of animal species are also supported by rocky slopes habitat. The contiguity of open space in the mountains provides habitat for species with large ranges, including the bobcat, mountain lion, and federally endangered Peninsular bighorn sheep. Other species include the golden eagle, prairie falcon and chuckwalla. The barefoot gecko may also be present, although its documented range occurs south of the planning area.

The rocky slopes of the Santa Rosa Mountains provide important habitat for the federally endangered Peninsular bighorn sheep. Site specific surveys for evidence of bighorn sheep activity in the mountainous areas are not necessary, since these areas are already known to provide habitat for this sensitive species and should be presumed to be occupied or occupiable habitat.

Urban and Agricultural Habitat
Urbanization can clear the land, thereby removing native vegetation and most wildlife habitat value. Where landscaping is introduced, exotic and other non-native plants often prevail. For this reason, urban lands are usually capable of supporting only limited endemic plant and animal species. Developed urban lands containing plantings of

native plant species, especially cacti, smoke trees and ocotillos may provide adequate food, water and shelter for birds, rodents and other small mammals.

Golf courses can support species that are capable of adapting to the modified landscape, including birds, rabbits, coyotes and certain species of bats. High concentrations of doves, quail and some songbirds are also known to utilize golf course habitat. However, most amphibians, reptiles and mammals are not adequately supported by the golf course environment.

Although agricultural lands do not harbor native plants or provide substantial sources of food, water, or shelter for most species, a wide variety of birds forage on agricultural lands and adjoining canals and ditches. Burrowing owls are known to nest along ditches and forage for insects on agricultural fields.

Buffer Zones

Development immediately adjacent to wildlife habitat areas can contribute to the eventual decline and/or elimination of species occurring in these areas. Increased site disturbance and human activity, including illegal dumping, recreational use and free-roaming pets, can seriously impact native plant and wildlife resources, and are incompatible with the protection of sensitive species. To minimize the effects of human activity on biologically sensitive habitat, buffer zones, including open space, parks, golf courses and drainage channels, should be established between sensitive habitat areas and urban development. Buffer zones help minimize occurrences of predation, disease, harassment, injury and/or death from motor vehicle accidents, and other dangers associated with human activity.

5.4.3 Sensitive Species

The La Quinta General Plan planning area is host to a wide variety of sensitive plant and animal species, some of which have been listed as threatened or endangered by federal and state governments. The U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG) maintain lists of these species and provide information on where they are known to be present or may occur. In addition, the California Native Plant Society, a non-profit conservation organization, maintains a listing of native flora it believes to be rare and/or endangered.

"Endangered" species are those with such limited numbers, or those that are subject to such extreme circumstances that extinction is a real possibility. "Threatened" species are those whose numbers have declined to such low levels, and/or whose populations are so isolated that the continuation of the species could be jeopardized in the near future. "Rare" and "sensitive" species are those that are particularly sensitive to the impacts of urban development, are naturally rare, or whose habitat is declining, but where perpetuation does not appear to be significantly threatened.

Table 5.4 provides a list of endangered, threatened and sensitive species known to occur, or likely to occur in the planning area. Exhibits 5.2 through 5.8 show the general location of sensitive plant communities and wildlife species known to occur within the City and extended planning area. A detailed description of each species is provided in the project biological assessment, which is included in the Appendix of the General Plan EIR.

5.4.4 Santa Rosa Mountains Wildlife Habitat Area

The Santa Rosa Mountains Wildlife Habitat Area (WHA) is located south of the Coachella Valley, in the foothills and upper elevations of the Santa Rosa Mountains. More than one-third of this area (121± square miles) is managed by the Bureau of Land Management (BLM). Remaining public lands are managed by the California Department of Fish and Game (CDFG), U.S. Forest Service, and the University of California.[75]

The WHA addresses the management of public lands in the Santa Rosa Mountains. The primary goal of the WHA is to manage the population of Peninsular bighorn sheep within the Santa Rosa Mountains by preserving the essentially pristine character of its habitat. The WHA Management Plan establishes policies which provide for public use of the Wildlife Habitat Area in a manner consistent with the maintenance of existing wildlife and habitat.[76] Much of the Santa Rosa Mountain range, including the mountains south and west of the La Quinta Cove, has been designated as a State Game Refuge by CDFG. The game refuge was established in 1917, and expanded in 1967,

primarily for the protection of the Peninsular bighorn sheep.[77]

Lands along the southern perimeter of the La Quinta Cove, and the mountains to the south and west are within the WHA boundaries. BLM and CDFG carefully review applications for new public trails and access roads, mining and grazing activities, and other projects that may disturb bighorn sheep activity in the area. Two sections of land in the southwest portion of the planning area are designated as a Wilderness Study Area. These lands are considered eligible for Wilderness designation by Congress because of their natural, undisturbed character.

5.4.5 Santa Rosa and San Jacinto National Monument

In October of 2000, the Santa Rosa and San Jacinto National Monument was signed into law. The Monument designates 440 square miles in five climate zones, ranging from desert to arctic pine. The Monument designation resulted in prohibitions on mining and off-road vehicle use. The Monument ranges from Palm Springs in the north to La Quinta and beyond. A management plan is now being developed for these lands.

Table 5.4
La Quinta Species of Concern

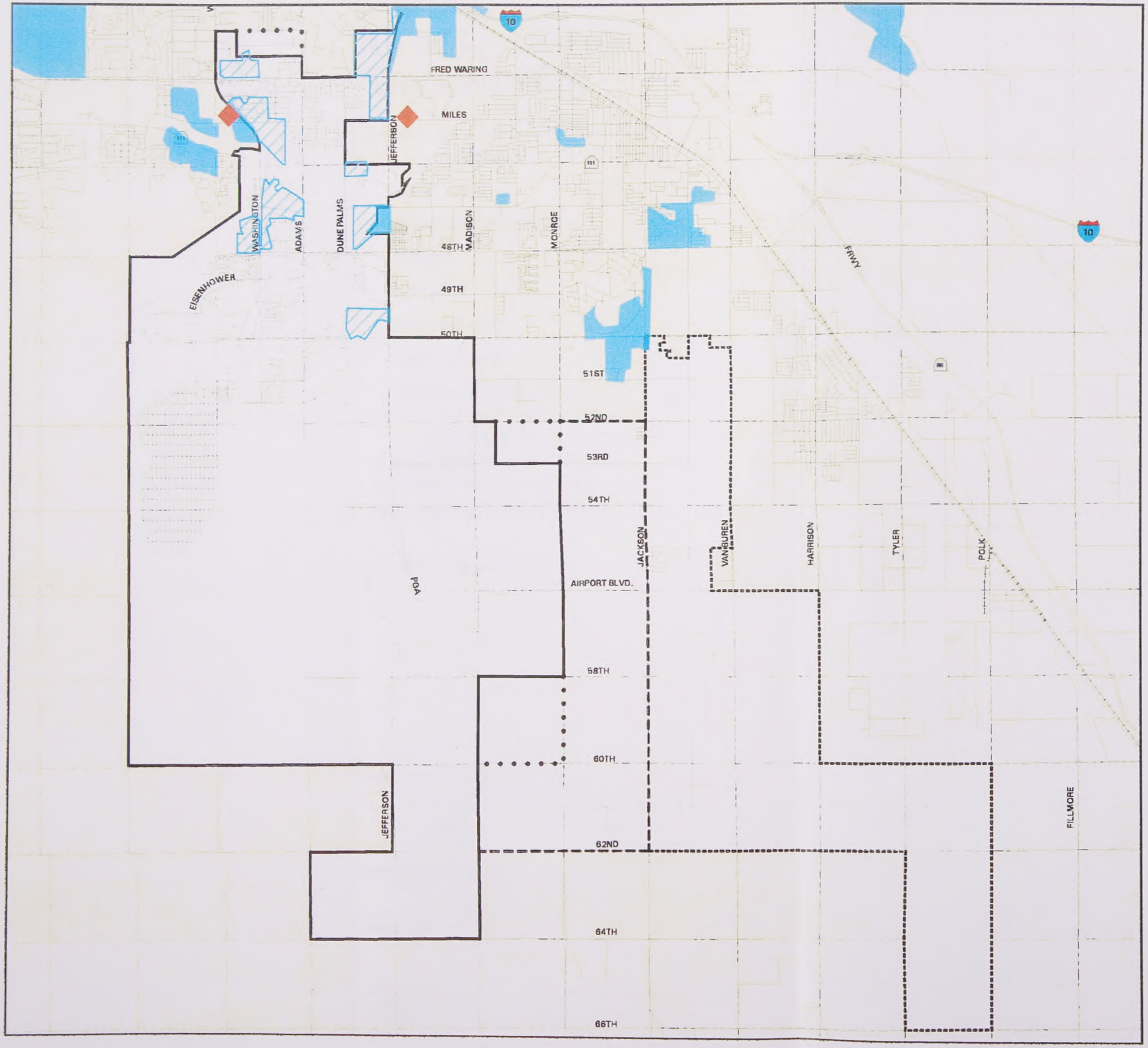
Animal and Plant Species	Scientific Name	Status
Plants		
California ditaxis	*Ditaxis californa*	FSC/SND
Coachella Valley milk-vetch	*Astragalus lentiginosus* var *coachella*	FE/SND
Flat-seeded spurge	*Chamaecyce platysperma*	FSC/SND
Glandular ditaxis	*Ditaxis adenophora*	FSC/ND
Slender woolly heads	*Nemacaulis denudata* var *gracilis*	FND/SND
Invertebrates		
Coachella Valley giant sand treader cricket	*Macrobaenetes valgum*	FSC/SND
Coachella Valley Jerusalem cricket	*Stenopelmatus cahuilaensis*	FSC/SND
Moth lacewing ("Cheeseweed owlfly")	*Oliarces clara*	FSC/SND
Reptiles		
Coachella Valley fringe-toed lizard	*Uma inornata*	FT/SE
Flat-tailed horned lizard	*Phrynosoma mc'calli*	FSC/SND
Desert Tortoise	*Gopherus agassizi*	FT/ST
Chuckwalla	*Sauromalus obesus*	FSC/ND
Birds		
Burrowing Owl	*Athene cunicularia*	FND/CSC
Crissal thrasher	*Toxostoma dorsale*	FND/CSC
LeConte's thrasher	*Toxostoma lecontei*	FND/CSC
Loggerhead shrike	*Lanius ludovicianus*	FSC/SND
Mammals		
Palm Springs little pocket mouse	*Perognathus longimembris bangsi*	FSC/SND
Palm Springs round-tailed ground	*Spermophilus tereticaudus chlorus*	FSC/SND
Peninsular bighorn sheep	*Ovis canadensis cremnobates*	FE/ST

Status Designations:

FE = Federally listed as endangered	SE = State listed as endangered
FT = Federally listed as threatened	ST = State listed as threatened
FPE = Federally proposed as endangered	CSC = California Species of Concern
FSC = Federal Species of Concern	SND = State, No designation
FND = Federal, No designation	

Please see the Biological Resource Assessment for a comprehensive listing of sensitive species.

City of La Quinta General Plan



LEGEND

- Roads
- Township/Range Sections
- Railroads
- City Limits
- Planning Area #1
- Planning Area #2
- City Sphere of Influence

EXHIBIT 5.2
COACHELLA VALLEY GIANT SAND TREADER CRICKET

- Coachella Valley Giant Sand Treader Cricket Potential Distribution
- Recommended Survey Area
- Coachella Valley Giant Sand Treader Cricket Archived Locations

Source: Lawrence F. LaPre, Ph.D., June, 2001

Scale
1:72,000

0 5,000 10,000 15,000
Feet

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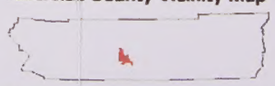
NORTH

Riverside County Vicinity Map



Map Prepared on: December 14, 2001
Map Prepared by: Aerial Information Systems
Map Version No.: 6

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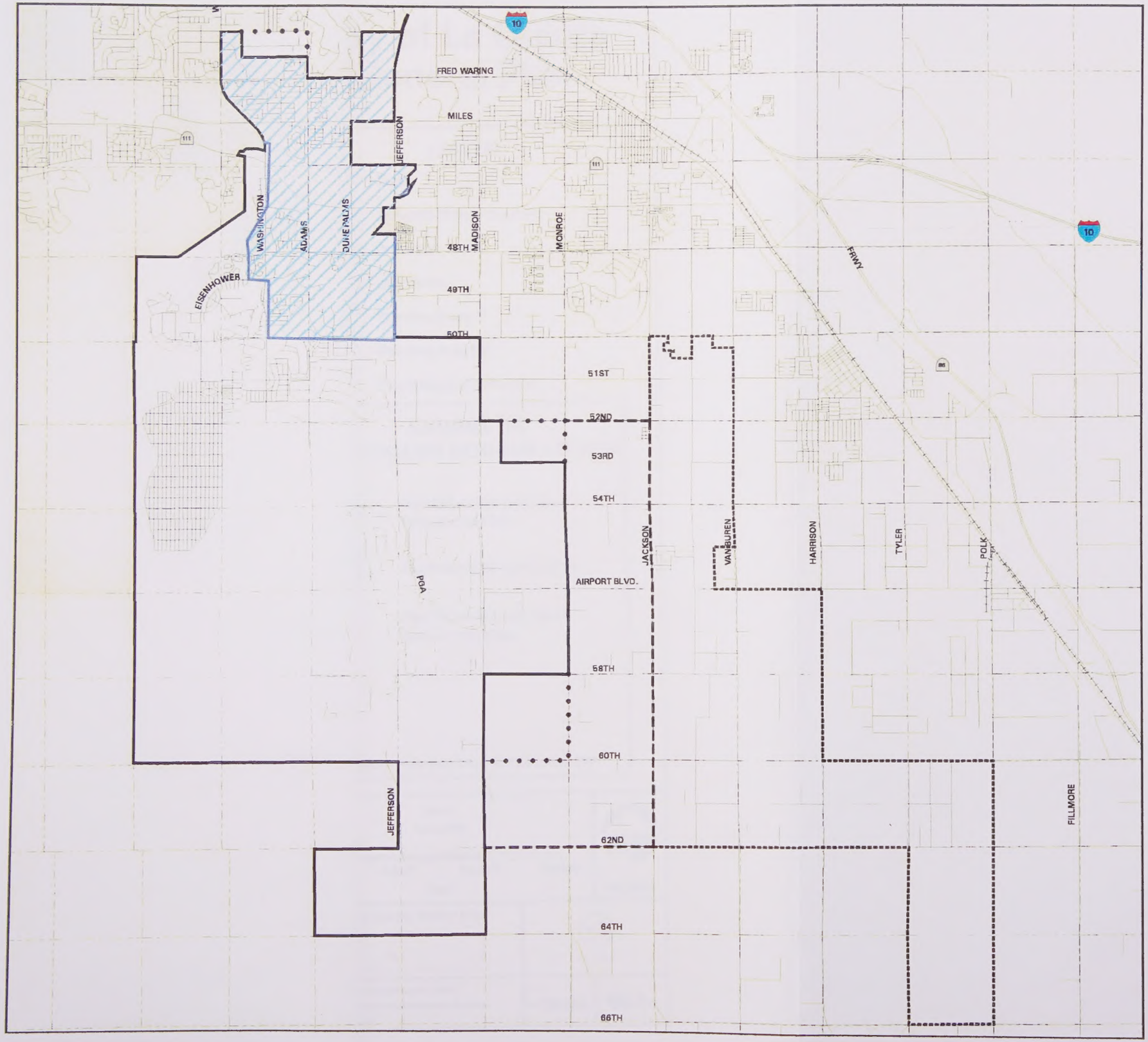
City of La Quinta General Plan



LEGEND

- Roads
- Township/Range Sections
- Railroads
- City Limits
- Planning Area #1
- Planning Area #2
- City Sphere of Influence

EXHIBIT 5.4
COACHELLA VALLEY FRINGE-TOED LIZARD FEE MITIGATION AREA

Fringe-Toed Lizard Fee Area

Source: Lawrence F. LaPre, Ph.D., June, 2001

Scale
1:72,000

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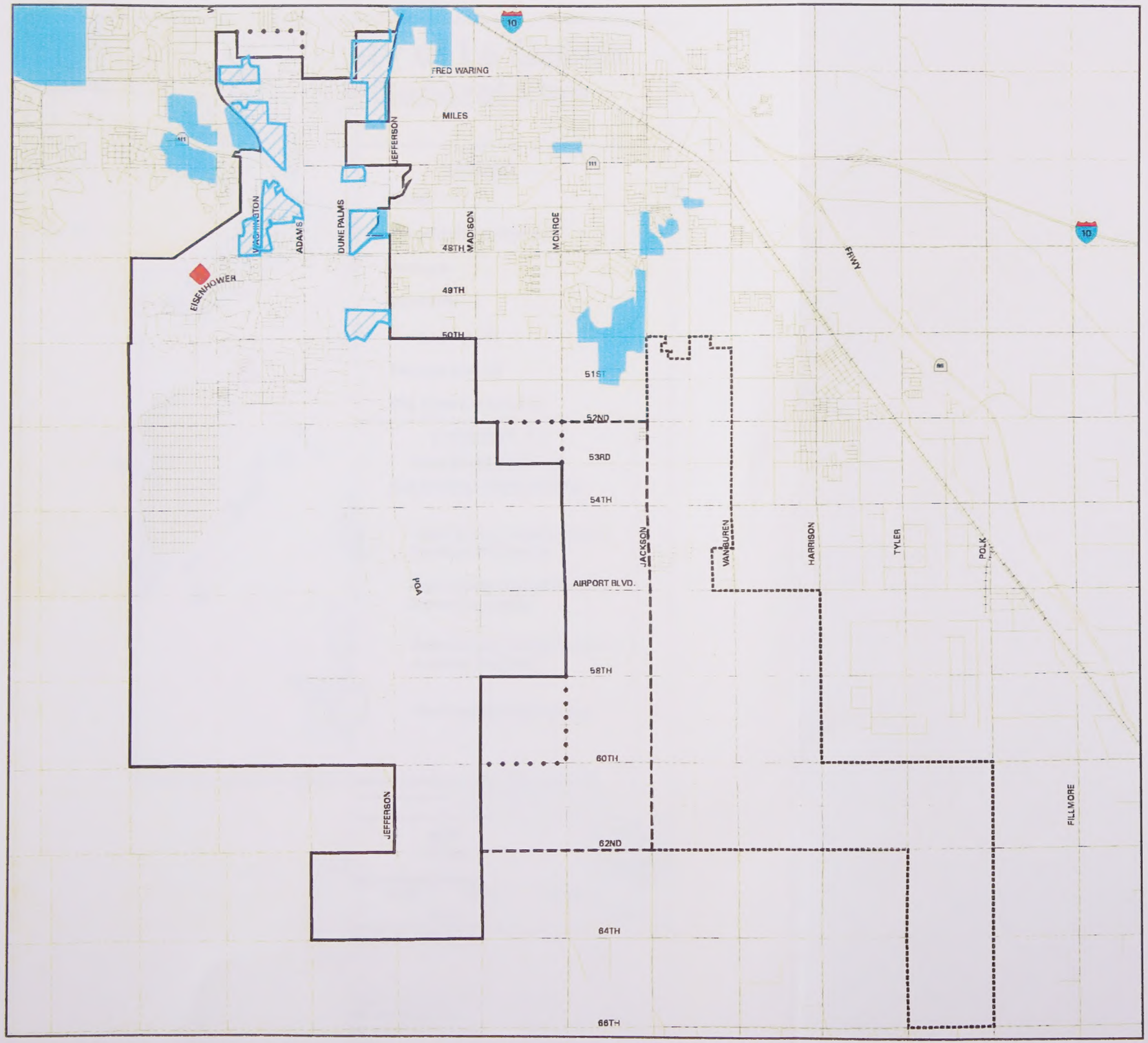
NORTH

Riverside County Vicinity Map

Map Prepared on: December 14, 2001
Map Prepared by: Aerial Information Systems
Map Version No.: 6

City of La Quinta General Plan



LEGEND

- Roads
- Township/Range Sections
- Railroads
- City Limits
- Planning Area #1
- Planning Area #2
- City Sphere of Influence

EXHIBIT 5.5
FLAT-TAILED HORNED LIZARD

- Flat-Tailed Horned Lizard Potential Habitat
- Recommended Survey Area
- Flat-Tailed Horned Lizard Known Locations

Source: Lawrence F. LaPre, Ph.D., June, 2001

Scale
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Feet

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Riverside County Vicinity Map

Map Prepared on: December 14, 2001
Map Prepared by: Aerial Information Systems
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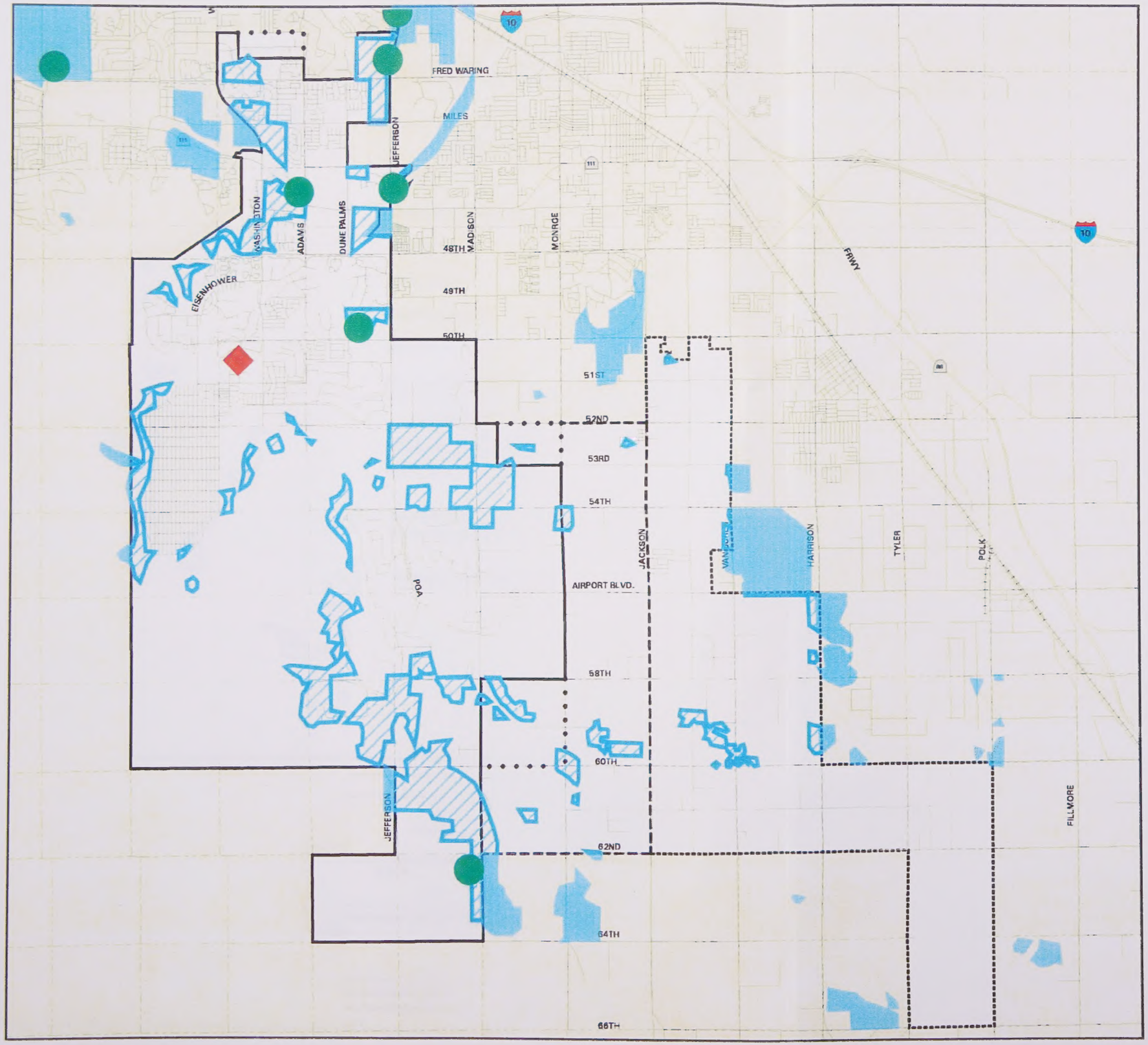
City of La Quinta General Plan



LEGEND

- Roads
- Township/Range Sections
- Railroads
- City Limits
- Planning Area #1
- Planning Area #2
- City Sphere of Influence

EXHIBIT 5.6
PALM SPRINGS GROUND SQUIRREL

- Palm Springs Ground Squirrel Potential Distribution
- Palm Springs Ground Squirrel Archived Locations
- Palm Springs Ground Squirrel Archived Locations
- Recommended Survey Area

Source: Lawrence F. LaPre, Ph.D., June, 2001

Scale
1:72,000

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NORTH

Riverside County Vicinity Map

Map Prepared on: December 14, 2001
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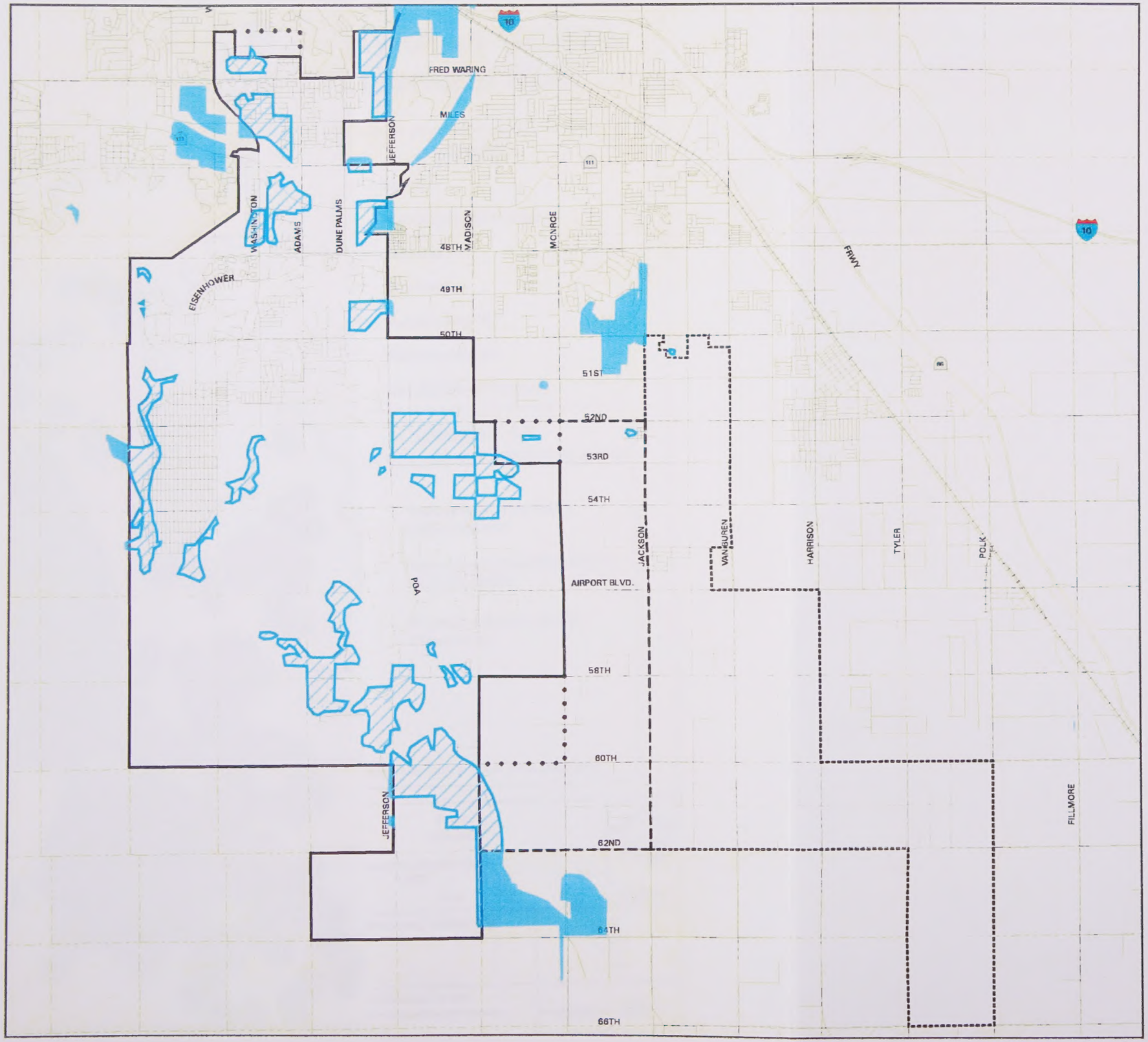
City of La Quinta General Plan



LEGEND

- Roads
- Township/Range Sections
- Railroads
- City Limits
- Planning Area #1
- Planning Area #2
- City Sphere of Influence

EXHIBIT 5.7
PALM SPRINGS POCKET MOUSE

- Palm Springs Pocket Mouse Potential Distribution
- Recommended Survey Area

Source: Lawrence F. LaPre, Ph.D., June, 2001

Scale
1:72,000

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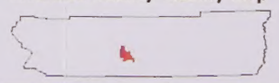
Feet

NORTH

Riverside County Vicinity Map



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Map Prepared by: Aerial Information Systems
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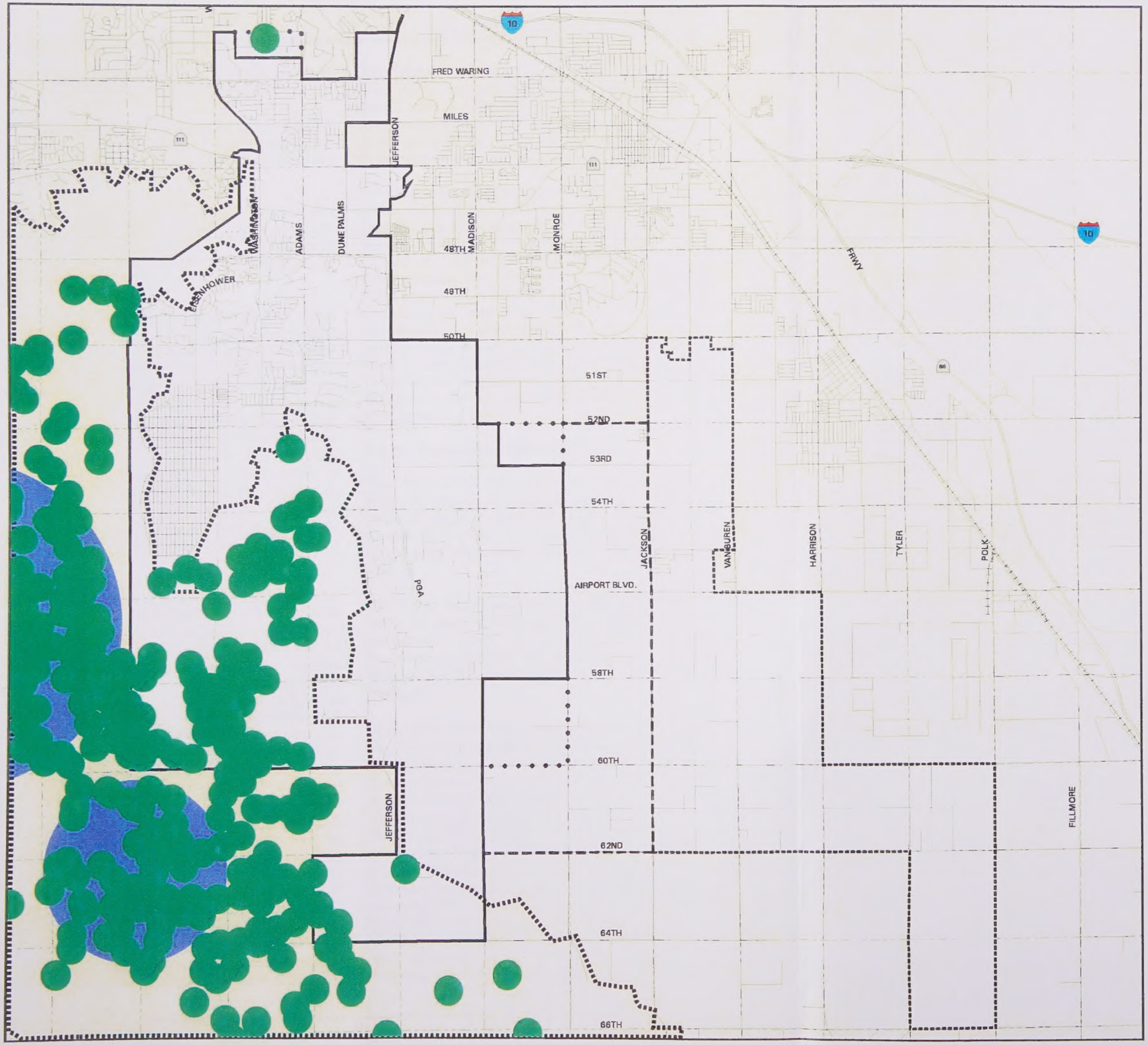
City of La Quinta General Plan



LEGEND

- Roads
- Township/Range Sections
- Railroads
- City Limits
- Planning Area #1
- Planning Area #2
- City Sphere of Influence

EXHIBIT 5.8
PENINSULAR BIGHORN SHEEP

- Peninsular Bighorn Sheep Critical Habitat
- Approximate Peninsular Bighorn Sheep Localities
- Peninsular Bighorn Sheep Observations

Source: Lawrence F. LaPre, Ph.D., June, 2001

Scale
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NORTH

Riverside County Vicinity Map

Map Prepared on: December 14, 2001
Map Prepared by: Aerial Information Systems
Map Version No.: 6

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5.4.5 Coachella Valley Fringe-toed Lizard Habitat Conservation Plan

The Coachella Valley Fringe-toed Lizard Habitat Conservation Plan (HCP) was adopted by Riverside County and ten Coachella Valley cities, including the City of La Quinta, in 1985.

The principal goal of the HCP is to protect and manage the habitat of the Coachella Valley Fringe-toed Lizard (CVFTL), which was federally listed as threatened, and state listed as endangered in 1980.[78]

The HCP called for the establishment of three preserves, each of which contains sand dune habitat that is vital to the survival and propagation of the CVFTL. The Coachella Valley Preserve, located near Thousand Palms, is the largest of the preserves and encompasses nearly 15,000 acres.[79] The Indian Avenue Preserve is located in Palm Springs within the Whitewater River floodplain and contains approximately 1,175 acres.[80] The Willow Hole/Edom Hill Preserve is located north of Interstate-10 near the Indio Hills and consists of about 1,863 acres.[81] The preserve system is managed by a combination of private and non-profit organizations and federal regulatory agencies.

The HCP currently requires a $100 per acre mitigation fee as compensation for the development of private lands located within a prescribed mitigation fee area. Some lands within the La Quinta General Plan planning area are located within the boundaries of the HCP mitigation fee area, and developers of these lands are subject to payment of the prescribed fee. Exhibit 5.4 delineates the boundaries of the HCP fee area.

The sand deposits may also be occupied by other blowsand endemics, including flat-tailed horned lizard, giant sand-treader cricket, slender woolly-heads and Coachella Valley milkvetch. These lands should be surveyed for these species, or an appropriate mitigation fee should be paid to address impacts to these species.

Programmatic 2081 Permit

The California Department of Fish and Game (CDFG) is the state regulatory agency responsible for the management of state-listed species and their habitat. Under the California Endangered Species Act (CESA), amended, the CDFG is authorized to issue 2081 Permits for the incidental take of state-listed species, including the Coachella Valley Fringe-toed Lizard. The CDFG typically authorizes 2081 permits on a project-by-project basis to individual developers during the planning process.

An alternative program, known as a Programmatic 2081 Permit, is intended to streamline the permitting process and to ensure that the incidental take of the state-listed Coachella Valley Fringe-toed Lizard is consistent with the 1985 Habitat Conservation Plan. Under this program, a single 2081 permit was issued by CDFG to the City of La Quinta for incidental take of the CVFTL. The City is authorized to issue subpermits to developers of private lands located within the boundaries of the CVFTL mitigation fee area. Developers of those lands would be required to pay the $600 per acre mitigation fee in accordance with the Habitat Conservation Plan.

5.4.6 Peninsular Bighorn Sheep

The Peninsular bighorn sheep was listed as a federally endangered species by the U.S. Fish and Wildlife Service in March 1998. The species is known to occupy portions of the Santa Rosa and Coral Reef Mountains within the City limits of La Quinta.

The Santa Rosa population of bighorn declined by about 76 percent between 1971 and 1997, from an estimated 1,170 to between 450 and 600 individuals.[82] Since that time, the population of bighorn has dropped to as few as 280 individuals in 1998.[83]

A number of factors have contributed to this rapid decline, including the effects of disease, high rates of predation, low recruitment of lambs, and habitat loss, degradation and fragmentation. Human encroachment into bighorn habitat has also negatively impacted the bighorn population. Between 1991 and 1996, nine bighorn were killed as a result of automobile accidents, primarily in the City of Rancho Mirage.[84] As a result, that City instituted a fencing program which aims to prevent access to the Highway 111 corridor by the sheep. The sheep are attracted to the lush vegetation at residences and resort developments located within and adjacent to the Santa Rosa Mountains. Bighorn are known to abandon valuable watering,

breeding and lambing sites that have been disturbed by human activity, such as hiking, horseback riding and construction activity.

Bighorn occupy rocky slopes extending from the toe of slope to elevations of about 4,000 feet. Key habitats include steep slopes, canyons, caves, and rock outcrops with dependable water sources nearby. Alluvial fan areas are also used for breeding and feeding activities.

In February of 2001, the Department of the Interior issued a Notice of Final Designation of Critical Habitat for the Peninsular Bighorn Sheep, which designates 844,897 acres of critical habitat in Riverside, San Diego and Imperial counties, and begins the implementation of the Recovery Plan for the species. Portions of the critical habitat boundary occur in the mountains adjacent to the City, as depicted in Exhibit 5.8.

5.4.7 Coachella Valley Multi-Species Habitat Conservation Plan

Habitat conservation plans that address the needs of more than one species or habitat have become an increasingly popular management strategy for protecting unique and valuable biological resources. The City of La Quinta and other members of the Coachella Valley Association of Governments (CVAG) are currently in the process of preparing the Coachella Valley Multiple Species Habitat Conservation Plan (MSHCP), which is designed to conserve large, contiguous undeveloped habitat areas for a wide range of plant communities and special-status animal species. The plan will cover more than one million acres in the Coachella Valley and surrounding mountains.[85] As many as 45 plant and animal species, 10 of which are listed as threatened or endangered by federal and/or state governments, are expected to be addressed in the MSHCP.[86]

The plan is intended to standardize mitigation and compensation measures for species of concern on a regional basis, and to satisfy the requirements of federal and state endangered species protection laws. Once adopted, the plan is also expected to limit the need for project-by-project review of the potential effects of development activities on species of concern. The City of La Quinta will continue to actively participate in the development of the HCP.

5.4.8 Focused Species Surveys

Given the likelihood that several sensitive species occur on undeveloped lands at the base of the Santa Rosa Mountains, it is recommended that focused species surveys be conducted on these lands prior to urban development. The surveys should determine the occurrence of Desert Tortoise, Palm Springs Ground Squirrel and Coachella Valley Fringe-toed Lizard. Areas to be surveyed are illustrated in Exhibits 5.3, 5.4, and 5.6.

5.5 Paleontological Resources

The following discussion is based upon a paleontological resource analysis prepared for the La Quinta General Plan Update by the Section of Geological Sciences of the San Bernardino County Museum.[87] The report is included in its entirety in the General Plan Environmental Impact Report (EIR).

Paleontologic resources represent a non-renewable resource with potential significance to the area's natural history. Such resources can often occur in areas which have previously held water, such as lakes, and therefore attracted animal life.

5.5.1 Geologic Background and Paleontologic Sensitivity

The Coachella Valley occurs in the Salton Trough, an extension of the Gulf of California. The City and its planning area occur in a portion of the Salton Trough which is generally below sea level, and is surrounded on three sides by mountains. The southeastern boundary of the Trough is the Colorado River Delta, southeast of the planning area. Marine water from the Gulf of California has been blocked from entering the Trough since the beginning of the Holocene period (over 11,000 year ago), but the area has seen freshwater lakes intermittently, which developed northward from the Delta.

Five soil types occur within the planning area, each with differing history and potential sensitivity for paleontological resources. Each of these is discussed below.

Mesozoic Granitics
Granitic rock is characteristic of the Santa Rosa and Coral Reef mountains which occur to the west and south, respectively, of the City and planning area. These areas have a low potential for containing significant paleontologic resources.

Pleistocene Older Alluvium and Terrace Deposits
Pleistocene alluvium has been found throughout southern California to have a high degree of sensitivity for paleontological resources. Such alluvial sediments occur in pockets in the southwestern portion of the planning area and downslope of the southern flank of La Quinta Peak. Although no recorded resources have been found in the planning area, finds within three miles of the boundaries of the planning area, one northeast of the Bermuda Dunes area and two in the Mecca Hills, have yielded tusk fragments, bivalves (mollusks) and animal tracks. Other areas of older alluvium south of the Coachella Valley, in the Anza-Borrego Desert State Park, have demonstrated a high degree of sensitivity for paleontologic resources. It is therefore expected that these soils in the planning area can also be expected to be highly sensitive.

Lake Cahuilla Beds
Much of the La Quinta area is underlain by lacustrine and fluvial sediments, deposited below the shoreline of ancient Lake Cahuilla. Lake Cahuilla occurred intermittently from as recently as 400 years ago to as long as 6,000 years ago. The lacustrine deposits occurred during at least seven high stands of the lake, when sediments were carried northward from the Colorado River delta. The fluvial sediments occurred when the lake receded, and soils were carried down stream beds and overlain on the lacustrine materials. These alternating lacustrine and fluvial sediments are referred to as Lake Cahuilla Beds, and have demonstrated a high sensitivity for "freshwater diatoms, land plants, sponges, ostracods, molluscs, fish and small terrestrial vertebrates."[88] Tufa, a carbonate coating on rocks which have been below the surface of a lake and subsequently exposed, has also been found and recorded on rocks along Jefferson Avenue and in Lake Cahuilla County Park, suggesting that the area was once submerged.

Recent paleontologic investigations in Lake Cahuilla Beds deposits have yielded a wide range of fossilized materials, including plants, molluscs, fish, lizards, snakes, birds and rodents. Table 5.5 Lists species recovered in previous investigations, and expected to occur in Lake Cahuilla Beds deposits.

Recent Alluvium
The Cove area, and the western boundary of the planning area are generally classified as Recent alluvium, and have resulted from runoff from adjacent mountains. Recent alluvium is considered too new to have significant paleontological resources. However, soils occurring below the Recent alluvium may have a high degree of sensitivity for paleontological resources.

Recent Dune Sand
The northern portion of the planning area is characteristically composed of Recent Dune Sand, resulting from the high winds which occur in this area. This soil classification is also too new to contain resources, but may occur over older soils which have a potential for high sensitivity.

5.5.2 Determining Levels of Sensitivity

Invertebrate Fossils
Invertebrate fossils are found in marine sediments. They are often widely found in an outcrop or formation, and occur in large, well preserved numbers. When found without vertebrate fossils, they can often be less sensitive than a few vertebrate fossils in a restricted area. The assumption can be made that invertebrate fossils in one part of a formation can also be found in another, and are therefore less sensitive.

Vertebrate Fossils
Vertebrate fossils include any animal with a backbone, and are much rarer than invertebrate fossils. The two can be found together, when occurring near the shore of a lake, for example. Since vertebrates are almost always found in smaller numbers, their occurrence has a higher potential significance, and therefore a higher paleontologic sensitivity.

High Sensitivity
Those areas of the planning area which have a high potential for containing resources are determined to be highly sensitive. Based on previous research in an area, it is assumed that development activity has a high potential to disturb fossilized resources during excavation. Generally, these areas occur within the traditional boundary of ancient Lake Cahuilla, and are represented in Exhibit 5.9.

Low Sensitivity
Deposits within the planning area which either have a low number of recorded sites, or in which few resources were located when investigated, are identified as having a low sensitivity.

Undetermined Sensitivity
Areas which have been poorly studied, due to poor exposure in the planning area and contain no recorded sites, but which have yielded resources in other areas, are determined to be of undetermined sensitivity.

Exhibit 5.9 illustrates areas where fossilized resources have been located within the planning area, areas of potentially high sensitivity for paleontologic resources, and the historic shoreline of ancient Lake Cahuilla.

Table 5.5
Lake Cahuilla Beds Composite Faunal List

Diatoms	
Campylodiscus ?clypeus	Nitzschia ?etchegoinia
Coccneis placentula	Nitzschia ?ergadensis
Cyclotella ?kuetzingiana	Nitzschia ?granulata
Epithemia argus	Pinnularia viridis
Epithemia turgida	Rhopalodia gibba
Hantzchia ?taenia	Surirella striatula
Mastogloia elliptica	Synedra ?ulna
Navicula palperbralis	Terpsinoei musica
Navilcula ?etchegoinia	Tetracyclus lacustris
Navicula ?ergadensis	
Land Plants	
Selaginella senuites (club moss)	Chenopodiaceae (saltbush)
Polypodiaceae (fern)	Onagraceae (evening primrose)
Pinus sp. (pine)	Quercus sp. (oak)
?Ceanothus sp. (Possible moutain lilac)	Compositae (ragweed and/or sunflower)
Betulaceae (alder or birch)	
Marine Species	
Porifera (sponges)	Ammicola longinqua (dusky snail)
Anodonta calforniensis (California floater clam)	Ferrisia ?walkeri (cloche ancylid)
Anodonta dejecta (floater clam)	Flumnicola sp. (Pebble snail)
Pisidium ?casertanum (pea clam)	Gyraulus parvus (as gyro)
Sphaerium stratum (clam)	Helisoma trivolis (rams horn)
Cypridopsis vidua (ostracodes)	Physella ampullacea (paper physa)
Cyprinotus torosa (ostracode)	Physella concolor (physa)
Limnocythere ceriotuberosa (ostracode)	Planorbella tenuis (freshwater snail)
?Cyprinodon macularius (possible pupfish)	Physella humerosa (corkscrew physa)
Gila elegans (bonytail chub)	Tryonia protea (desert (tryonia)
Xyrauchen texanus (razorback sucker)	Fossaria sp. Cf. F. Parva (snail)
	Acetocina anomala (marine snail)
Amphibians	
Rana pipiens (leopard frog)	
Reptiles	
Phrynosoma platyrhinos (desert horned iguana)	Chinoactis occipitalis (western shovel-nose snake)
Sceloporus magister (desert spiny lizard)	Hypsiglena torquata (night snake)
Uma inornata (Coachella Valley fringe-toed lizard)	Pituophis melanoleucus (gopher snake)
Urosaurus graciosus (long-tailed crush lizard)	Sonora semiannulata (western ground snake)
Crotalus sp. (Large) (large rattlesnake)	Crotalus cerastes (sidewinder)
Birds	
Pelecanus erythrorhynchos (white pelican)	Phalacrocorax sp. (cormorant)
Mammals	
Sylilagus sp. (Cottontailed rabbit)	Perognathus (longimembris (pocket mouse)
Ammosspermophilus leucurus (antelope ground	?Dipodomys sp. (Possible kangaroo rat)
Thomomys sp. (Pocket gopher)	Peromyscus sp. (Deer mouse)
Neotoma lepida (desert wood rat)	?Equus sp. (Small) (possible extinct small horse)
Odocoileus sp. (deer)	Ovis canadensis (bighorn sheep)

City of La Quinta General Plan

LEGEND

- Roads
- Township/Range Sections
- Railroads
- City Limits
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EXHIBIT 5.9
PALEONTOLOGICAL SENSITIVITY MAP

- Ancient Shoreline
- Lake Beds

H High Paleontologic Sensitivity

L Low Paleontologic Sensitivity

Scale
1:72,000

0 5,000 10,000 15,000
Feet

NORTH

Riverside County Vicinity Map

Map Prepared on: December 14, 2001
Map Prepared by: Aerial Information Systems
Map Version No.: 6

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5.6 Water Resources

5.6.1 Groundwater Resources

The Whitewater River sub-basin, which extends from the junction of Highway 111 and Interstate 10, west of Palm Springs, to the Salton Sea, south and east of the City, serves as the groundwater repository for the Coachella Valley. The sub-basin covers a total of 400 square miles, and is further divided into sub-areas due to fault barriers, constrictions in basin profile, and areas of low permeability. Water within the sub-basin flows from the northwest to the southeast, as evidenced by higher water levels at the northwest portions of the sub-areas. A study conducted by the California Department of Water Resources in 1964 estimated that the sub-basin had approximately 28.8 million acre feet of water in storage (one acre foot is the volume of water that would cover an acre of land to a depth of one foot, and is equal to 324,829 gallons).

The City and General Plan planning area are underlain by the upper Thermal and lower Thermal subareas of the Whitewater River Subbasin, with the division occurring at Point Happy, near the intersection of Washington Street and Highway 111. The entire Thermal subarea is estimated to contain approximately 19.4 million acre-feet of groundwater in storage within the first 1,000 feet below the ground surface.

CVWD utilizes deep wells to extract groundwater from the subsurface aquifer. Irrigation needs are supplemented with imported Colorado River water delivered through the Coachella Branch of the All-American Canal. Lake Cahuilla acts as the terminal reservoir for the Canal and is used by CVWD to maintain appropriate canal water levels. Canal water is also used for irrigation purposes by some golf courses in the City.

Demand and Overdraft

The depletion of groundwater in storage in the Coachella Valley has continued steadily since the expansion of agricultural activities in the early 1900s and the development of the Coachella Valley as a destination resort area in more recent decades. According to CVWD's "Coachella Valley Water Management Plan" (November 2000), in 1936, total water demand in the Coachella Valley was approximately 96,300 acre-feet per year. However, by 1999, demand had reached 668,900 acre-feet per year. Of this, about 444,700 acre-feet were demanded from users in the Lower Valley (which extends from La Quinta to the Salton Sea). These figures represent demand from all water users in the Valley, including agricultural, municipal and industrial components, fish farms, and golf courses. This demand has been satisfied by a number of water sources, including groundwater, surface water, recycled water, and canal water.

The demand for groundwater in the Lower Valley also increased during the twentieth century, although to a lesser degree than overall water demand. Groundwater usage in the Lower Valley increased from about 76,800 acre-feet in 1936 to 168,300 acre-feet in 1999. This rate of increase is smaller than overall water demand largely because of the recent availability of additional sources of supply, most notably the importation of Colorado River water through the Coachella Canal. Nonetheless, CVWD well-monitoring data indicate that, from the 1920s to the 1950s, water levels in the Lower Coachella Valley decreased by approximately 50 feet. Although they leveled off somewhat following the introduction of Colorado River water for irrigation in 1949, they began declining rapidly again in the early 1980s, a trend which has continued to the present day.

The historical depletion of groundwater in the Coachella Valley has led to a condition known as overdraft, in which the demand for groundwater exceeds the amount of recharge into the groundwater basin over a period of time. According to CVWD, in the Lower Valley in 1936, the estimated groundwater in storage decreased by about 12,500 acre-feet/year. By 1999, the estimated groundwater in storage was decreasing by about 41,700 acre-feet/year. These figures represent the annual difference between inflows and outflows in the groundwater basin and indicate that the change in storage has been negative over time.

Groundwater Replenishment

To assure the continued availability of domestic water to the Coachella Valley, CVWD and Desert Water Agency have contracted for State Water Project (SWP) resources. Under this contract water from northern California would be transported to the valley via the Coachella Aqueduct. However, since the aqueduct has not yet been constructed, CVWD and DWA have entered

into a contract with the Metropolitan Water District of Southern California (MWD) to exchange their SWP entitlements for like amounts of water from MWD's Colorado River Aqueduct. The Aqueduct is tapped where it crosses the Whitewater River, and exchange water is diverted to nineteen spreading ponds, where it percolates to replenish the groundwater subbasin. Since its inception in 1973, more than 1.7 million acre-feet of Colorado River water have replenished the Whitewater River subbasin.

Although the La Quinta General Plan planning area is outside the area of benefit of these recharge waters, such recharge activity may be successfully accomplished in the Lower Coachella Valley in the Future. CVWD has operated a pilot recharge facility south of Lake Cahuilla since 1995 to determine whether successful recharge can occur in this vicinity. The facility was expanded in 1998 and has been recharging about 30,000 acre-feet per year, suggesting that recharge is feasible in this portion of the Lower Valley.

A substantial amount of imported Colorado River water is also delivered to the Lower Coachella Valley via the Coachella Branch of the All-American Canal. This water is primarily used for the irrigation of 72,800 acres of fruit and vegetable crops, but is also supplied to fish farms, waterfowl migration ponds ("duck clubs"), and commercial greenhouses in the lower valley. A few golf courses and recreational lakes are also supplied by canal water. During 1999, the Canal delivered approximately 274,900 acre-feet of Colorado River water to the Lower Valley.

Tertiary Treated Water

To further reduce the impacts of development on groundwater supplies, CVWD has implemented the use of tertiary (third stage) treated wastewater for golf courses and landscaped areas. Wastewater typically undergoes two levels of treatment before it is released to percolation ponds and reintroduced into the groundwater table. Tertiary treated waste, however, undergoes an additional stage of treatment, which makes it suitable for irrigation purposes and decreases, to some extent, the demand for groundwater resources. Today, CVWD recycles treated wastewater from three of its wastewater reclamation plants. Although not currently in use in the planning areas, a number of Valley golf courses irrigate with tertiary treated water.

Water Quality

Groundwater quality in the Coachella Valley is generally good to excellent. However, water quality monitoring data indicate that, during the twentieth century, concentrations of total dissolved solids (TDS), nitrates, and salts have increased throughout the groundwater basin. TDS concentrations in the upper aquifer of the groundwater basin have increased from less then 250 milligrams per liter (mg/L) in the 1930s to an average of approximately 540 mg/L currently. Higher TDS levels are typically found in the vicinity of major faults, although the importation of Colorado River water, which is typically higher in TDS than natural upper Whitewater River groundwater, has also affected regional water quality.

Nitrate concentrations in the Coachella Valley's groundwater have increased from less than 4 mg/L in the 1930s to more than 45 mg/L in the 1970s. Such increases are most likely related to the application of fertilizer on agricultural land and golf courses, and the long-term discharge of effluent from on-lot septic systems.

Salts have also been added to the groundwater basin through natural recharge, the importation of water, wastewater discharge, the application of fertilizers, and intrusion from the Salton Sea into the groundwater basin. CVWD estimates that approximately 265,000 tons of salt were added to the groundwater basin in 1999, compared to only 12,000 tons in 1936. The removal of agricultural salts is accomplished through the use of agricultural drains, which drain directly into the Coachella Valley Stormwater Channel or Salton Sea.

Water Conservation

A number of programs have been implemented by both the City and the CVWD to encourage water conservation. The City's ordinances support, and in some cases require, the planting of drought tolerant landscaping. The District has published a number of pamphlets on drought tolerant landscaping, and offers plan checking for landscape plans. The City also implements provisions of the Uniform Building Code which require the installation of water conserving fixtures in homes and businesses.

5.6.2 Surface Water

The Whitewater River and its tributaries are the main surface water channels in the City and planning area. In addition, the Coachella Canal, which supplies Colorado River water to the planning area, Lake Cahuilla, and lakes and ponds within private planned communities, are local sources of surface water.

The Coachella Valley Stormwater Channel, which occurs immediately north of Highway 111 and divides the City, is the primary drainage channel in the region.

The watersheds in the City, which are subject to intense short-duration rainfall, experience runoff which flows to intermittent streams and drain to the Valley floor. The area's primary watershed is Bear Creek, which occurs at the south end of the Cove area, and divides into two smaller streams running on either side of the Cove.

Surface Water Management
Much of the City occurs outside the 100 year floodplain, as determined by the Federal Emergency Management Agency. Isolated areas of the Cove are located in Zone A, as are the flood control channels.

The Coachella Valley Water District (CVWD) maintains the Coachella Valley Stormwater Channel, the La Quinta Evacuation Channel, the Bear Creek Channel, and other drainage facilities in the City.

Mid-Valley Channel
The CVWD has planned and designed a drainage channel to be constructed along the foot of the northeast facing slope of the Palm Springs Sand Ridge, from Cathedral City to Indio. The channel is planned to occur adjacent to the Union Pacific Railroad lines, paralleling Interstate 10. The channel is needed to provide controlled drainage to an isolated portion of the Whitewater River drainage area.

A detailed discussion of surface water management efforts in the City and planning area is included in the Environmental Hazards Element.

6.0 ENVIRONMENTAL HAZARDS

6.1 Hazardous Materials

A wide variety of chemical products which are considered hazardous or toxic are used in households, commercial businesses and industrial processes. Such chemicals include pool related chlorine products, fertilizers, herbicides, pesticides, stored fuel, waste oil and chemical solvents and cleaners. While the environmental and health impacts of some chemicals remain unknown, others have been proven as harmful to human health. Exposure to chemical compounds can result in mild to severe adverse health effects, including lung disease, skin rashes and burns, and poisoning.

The generation, storage and transport of hazardous and toxic materials within the planning area is limited to "small source" operations. Households are known to store and utilize fertilizers, paint, chlorine products and other cleaners and solvents. Commercial establishments, including dry cleaning facilities, pest control companies, film processing operations and gas stations produce limited quantities of hazardous waste, which must be stored and transported through the planning area for proper disposal. Medical clinics generate hazardous wastes associated with various medical treatments and procedures. Golf courses and agricultural operations use pesticides, herbicides and chemical fertilizers, which require proper storage and application, and may contribute to the contamination of the groundwater table.

6.1.1 Hazardous Waste Regulation

Hazardous waste management and disposal oversight is primarily the responsibility of the federal Environmental Protection Agency (EPA). Additional regulatory power lies with the California Office of Health Planning and Development and the Riverside County Department of Environmental Health.

The EPA and the California Department of Health maintain information regarding specific hazardous waste sites. The California Regional Water Quality Control Board (CRWQCB) and the Coachella Valley Water District supply information about contaminated groundwater and wells. The Riverside County Department of Environmental Health, Hazardous Materials Division, maintains a listing of hazardous material generators, as well as the locations of underground storage tanks and leaking tanks.

6.1.2 Hazardous Waste Management Plans

A variety of measures have been implemented in response to the need for safe management of hazardous materials and waste products. AB 2948, also known as the Tanner Bill, was passed in 1986 and authorizes counties to prepare Hazardous Waste Management Plans (HWMP). The Riverside County HWMP identifies the types and amounts of hazardous wastes generated in the County and establishes programs for hazardous materials management. The document was adopted by the County Board of Supervisors and approved by the California Department of Health Services in 1990. The HWMP has been adopted by ordinance by the City of La Quinta.

6.1.3 Hazardous Waste Disposal

Commercial and industrial hazardous waste generators located within the planning area are responsible for arranging their own waste disposal services. The Riverside County Environmental Health Department maintains a comprehensive listing of local and regional contractors offering disposal services and provides this information to the public.[89]

6.1.4 Household Hazardous Waste

To facilitate the collection and proper disposal of household hazardous wastes, the Riverside County Department of Environmental Health operates the ABOP facility in Palm Springs. The facility accepts anti-freeze, batteries, waste oil and water-based paint, and is available only to household generators.[90]

The Household Hazardous Waste program, which is also operated by the County, provides a mobile hazardous waste collection unit to communities within the Coachella Valley. The unit moves to various locations throughout the year; the rotation cycle is determined through participation in the Coachella Valley Association of Governments.[91]

The mobile facility accepts all types of household hazardous waste materials, except explosives, bio-hazards and radioactive materials.[92]

6.1.5 Cleanup Efforts

Riverside County has the authority to require property owners to test hazardous waste sites, temporarily close operations and/or remove all hazardous liquids, solids or sludge. Leaking underground storage tanks must be removed by contractors who hold a General Engineering license and Hazardous Waste Certification. If soil contamination is discovered, the County Department of Environmental Health is responsible for enforcing adequate cleanup measures and methods of treatment. The Regional Water Quality Control Board may also become involved in cleanup efforts if contamination of a water source is detected.

6.1.6 Emergency Response

The Riverside County Fire Department operates a specialized Hazardous Materials Team, which provides emergency response services throughout the County in the event of a hazardous materials spill or similar accident. In addition to being trained firefighters, all members of the Riverside County Hazmat Team are "specialists," who have received at least six weeks of training specifically dedicated to hazardous materials emergency response, the highest level of training offered in the state.[93] The County's response to a hazardous materials emergency is a coordinated effort involving participation from a number of parties, including a battalion chief, the Hazmat Team, a fire engine, a squad vehicle, and a representative from the County Environmental Health Department.[94]

6.2 Emergency Preparedness

The City of La Quinta is subject to potentially significant environmental hazards, which could threaten life, property and the general well-being of the community. The City's proximity to seismic faults and the steep slopes of the Santa Rosa Mountains leave the City vulnerable to earthquakes, flooding and other natural disasters. Although these natural occurrences cannot be prevented, they can be anticipated.

The City must also protect its residents and property from technological threats, including urban fires, hazardous materials spills and leaks, and major transportation accidents.

6.2.1 Multi-Hazard Functional Plan

In 1996, the City of La Quinta adopted its Multi-Hazard Functional Plan (MHFP). The MHFP establishes the City's planned response to natural and technological emergency situations. The plan is based on a similar document prepared by the County of Riverside, but is specific to conditions within the City.[95] The MHFP defines actions to be taken during various emergency situations, defines the responsibilities of local emergency response personnel, and identifies sources of outside support which might be provided from neighboring communities and other agencies.[96]

The MHFP has been endorsed by the State Office of Emergency Services. As a result, the City is included in the statewide emergency system and is recognized as having a Certified Disaster Council.[97] The Council has the authority to request emergency response assistance when necessary, and to provide support services, such as worker's compensation, to relief workers. The Council is comprised of the mayor, City Manager, Assistant City Manager, Community Safety Manager, City Engineer, Community Development Director and Building and Safety Director.

6.2.2 Community Safety Manager[98]

The Community Safety Manager serves as the Emergency Services Coordinator for the City. In this capacity, the Emergency Services Coordinator is responsible for preparing the City's emergency response programs, coordinating city staff and disaster worker training, and coordinating public outreach and education programs relating to natural and technological emergencies. The City actively participates in the Operational Area Planning Committee as well as the Coachella Valley Communications Committee, which meet regularly to discuss and coordinate local and regional emergency preparedness and planning activities.

6.2.3 Critical Facilities

Critical facilities are an essential component of the emergency response plan and must be protected from disruption to the greatest extent possible. Such facilities include hospitals, fire and police stations, governmental operations and utility facilities, particularly water delivery systems. Telecommunications infrastructure, especially commercial radio stations, also play an important role in notifying and advising the public during emergency situations.

The City is able to reduce potential impacts to critical facilities through land use planning, zoning and strict enforcement of building codes.

6.2.4 Emergency Transportation Routes

The delivery of emergency relief personnel, equipment and supplies is critical to disaster recovery. The City must protect roadways and bridges from collapse or damage resulting from a hazardous incident to the greatest extent practical. All-weather bridge crossings, earthquake-resistant bridges, and protection from steep slopes can be employed to reduce potentially damaging impacts. Designated evacuation routes also play an important role in facilitating the evacuation of the community and/or the delivery of relief personnel, equipment and supplies.

6.2.5 Emergency Operations Center (EOC)

Emergency Operations Centers (EOC) serve as the base of operations during emergency situations and are considered critical facilities. The La Quinta Civic Center building has been designated as the City's primary EOC, and the Senior Center has been designated as an alternate EOC.[99] The Riverside County Administrative Centers in Riverside and Indio, which have been designated as the County's EOCs, and the County's Mobile EOC may also be employed to provide assistance during an emergency.[100]

Once activated, the City Emergency Operations Center (EOC) will function utilizing the Standardized Emergency Management System (SEMS), as set forth in Government Code 8607.

6.3 Geotechnical and Seismic Hazards

The following discussion is largely based upon the geotechnical background report prepared for the La Quinta General Plan Update by Earth Consultants International.[101] The report is included in its entirety in the General Plan EIR.

6.3.1 Regional Geotechnical Conditions

Southern California and the Coachella Valley are susceptible to a wide range of hazards associated with geotechnical conditions. The City of La Quinta and its planning area are located between two of southern California's most active faults, the San Andreas and the San Jacinto. As a result, the planning area is subject to a variety of seismically induced phenomena, including ground shaking, landslides, liquefaction, seiche, subsidence and fault rupture.

Although earthquakes cannot be predicted or prevented, their destructive effects can be minimized. The City, emergency relief organizations and residents must prepare and implement policies and programs directed at reducing the impacts of earthquakes and associated geologic threats.

Physiographic and Geologic Setting

The geologic composition of the Coachella Valley controls, to a great extent, the geotechnical hazards that affect the planning area. Rocks and sediments that underlie the planning area include granite associated with the Santa Rosa Mountains, lacustrine (lake) deposits from former bodies of water in the Coachella Valley, alluvium (stream deposits) shed from local mountains, and blowing sand deposits.

The mountains and valley floor of the planning area are comprised of several layers of rock and sediment which have collected over millions of years. The oldest deposits are generally found at the greatest depths, with the most recent deposits at the surface.

Granite (gr) functions as the foundation for regional soils. The Santa Rosa Mountains consist of hard, crystalline granite, formed more than 65 million years ago. Granitic outcrops are found in steep hills and slopes located in the south-central and western portions of the City. Although these

rocks are generally stable, they can pose a rockfall hazard to areas adjacent to and downgradient from steep slopes.

Quaternary Conglomerate (Qc) and Quaternary Terrace Deposits (Qt) occur on top of the granite foundation, along the margins of the valley. Quaternary Conglomerate is known to contain boulders up to 19 feet in diameter and affects the productivity of the area's groundwater aquifers. Surface outcrops of Quaternary Terrace Deposits are found immediately south of Lake Cahuilla, where they were once mined at a gravel pit.

The next layers of sediment which comprise the valley floor are Interbedded Quaternary Lake and Alluvial Deposits (Ql/Qal). These units consist of deposits from ancient Lake Cahuilla and other large lakes, imbedded with alluvial (stream-deposited) deposits. They were deposited as recently as 400 years ago and are up to 300 feet thick. The shrink-swell potential of fine-grained lake deposits may be moderate to high and must be considered during grading and construction.

Quaternary Alluvium (Qal) is primarily distributed at the mouths of drainages in the Santa Rosa Mountains and in the eastern portion of the planning area. These deposits may have accumulated rapidly, without being saturated, and therefore may be subject to wind erosion and collapse upon introduction of irrigation water.

Sand-dune deposits (Qsd) primarily occur immediately south of Highway 111. The major engineering concerns in this area include wind-blown sand erosion and collapsible soils.

The geologic composition of the planning area is illustrated in Exhibit 6.1.

6.3.2 Soil Profile

Soil types play an important role in determining the extent to which structural damage may occur as a result of a seismic event. The 1997 Uniform Building Code (UBC) describes six soil types which comprise the top 100 feet of the soil profile within the planning area, and provides estimates of their shear strength and anticipated ground acceleration during an earthquake. These estimates are based on the distance between each soil type and the nearest active fault system. The location of the various soil types within the planning area, and their distances from the San Andreas Fault, are shown in Exhibit 6.2.

UBC soil classifications help determine the types of engineering and construction techniques needed to reduce structural damage and collapse during an earthquake. Other mitigation measures, including proper grading and excavation techniques, can also reduce structural damage. Existing buildings that are considered potentially hazardous, including unreinforced masonry buildings and mobile homes, may benefit from seismic retrofitting and rehabilitation, which often results in a substantial reduction in casualties by preventing collapse.

6.3.3 Measuring Seismic Events

Earthquakes are classified by their magnitude and intensity. The intensity of ground shaking depends on several factors, including the magnitude of the earthquake, the distance from the epicenter, and the composition of local soils and rock.

The Modified Mercalli Intensity (MMI) scale is the most commonly used intensity scale and includes twelve levels of damage. The scale is based upon actual observations of damage to structures and human reactions to a quake. During a Level I quake, tremors are generally not felt, while a Level XII earthquake results in total destruction. Depending on earthquake intensity, damage may include partial or complete collapse of masonry buildings, serious to complete destruction of underground pipelines, land and rock slides, and damage or destruction of bridges and overpasses.

The Richter Scale measures earthquake magnitude using a scale of one to nine. Each increase in level of magnitude represents a tenfold increase in the amplitude of the waves on a seismogram.

The most notable historic earthquake in the La Quinta region was the Richter magnitude 7.3 Landers earthquake, which occurred on June 28, 1992. The epicenter was located 30 miles north of La Quinta, and Modified Mercalli Intensity Level VI ground shaking was observed in the La Quinta area.

The Maximum Probable Earthquake (MPE) is the largest earthquake likely to occur on a fault or fault segment, within a specified period of time. The

MPE is used for emergency and engineering planning purposes to evaluate the potential seismic risk within the region, help establish safe construction and design parameters, and facilitate the preparation of policies and programs that are responsive to the potential impacts of an earthquake.

The Maximum Probable Earthquake for the City of La Quinta is a magnitude 7.2 event generated by the San Jacinto fault or the Coachella Valley segment of the San Andreas fault. Such an earthquake could result in extensive damage to mobile homes and buildings constructed before 1940, the generation of substantial amounts of debris, economic losses, and possible injuries and loss of life.

The Maximum Credible Earthquake (MCE) is the largest earthquake a fault is believed to be capable of generating and should also be considered in planning and engineering efforts. The MCE for the planning area may be as great as a magnitude 8.0 earthquake resulting from a single large rupture along the San Andreas fault. Damage associated with such a quake is expected to be far more extensive than that associated with the Maximum Probable Earthquake.

6.3.4 Active Faults in the Planning Area

No active or potentially active faults are known to occur within the City of La Quinta or its planning area. However, two of southern California's most active fault zones, the San Andreas and San Jacinto, are located in the vicinity and could impact the planning area. The Elsinore Fault Zone, located about 30 miles southwest of the City, also has the potential to affect the region. Each of these fault zones is discussed below.

San Andreas Fault Zone
The San Andreas Fault Zone is the principal boundary between the Pacific and North American plates. It is the closest major fault system to the City of La Quinta, located less than 3 miles northeast of the City. The southern portion of the fault zone has been subdivided into three segments: the Coachella Valley, the San Bernardino Mountains and the Mojave.

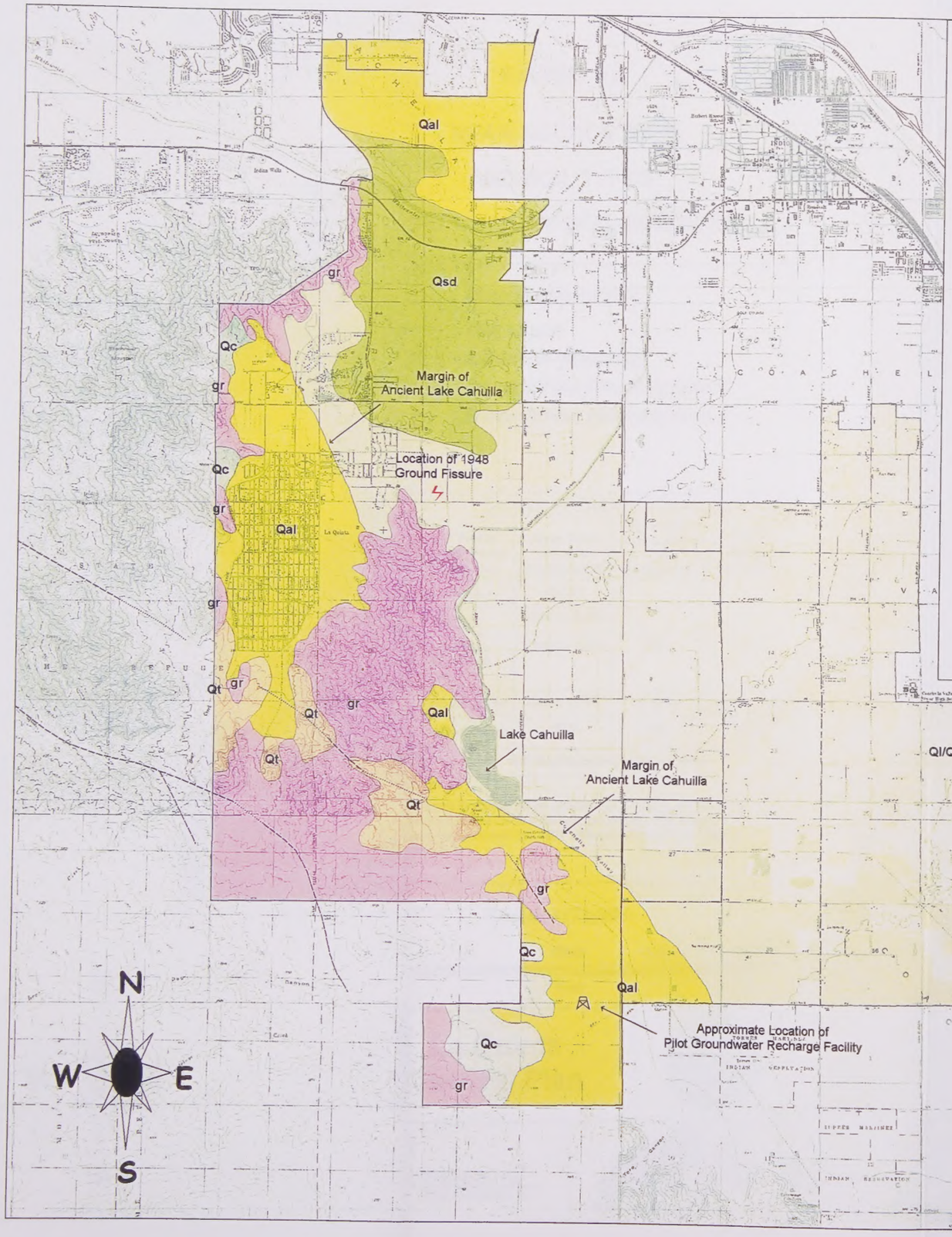
The Coachella Valley segment extends approximately 71 miles in length, from the Salton Sea northwest to the San Gorgonio Pass. It is considered the least likely of the San Andreas segments to fail within the near future, with a 22 percent probability of producing a magnitude 7.0 earthquake before the year 2024.

The San Bernardino Mountains segment is located 30 miles northwest of La Quinta and extends approximately 48 miles in length. It last ruptured in 1812. The Landers earthquake of 1992 may have accelerated the potential for this fault to fail by 8 to 22 years, and it is considered the most likely segment to fail within the next 30 years.

The ± 63 mile Mojave segment of the southern San Andreas fault zone is the northernmost segment with the potential to significantly impact the La Quinta area. It last ruptured during the Fort Tejon earthquake of 1857. This segment is estimated to have a 26 percent probability of generating a magnitude 7.0 quake before 2024.

San Jacinto Fault Zone
The San Jacinto Fault system is located about ten miles southwest of La Quinta. It extends for approximately 175 miles and is capable of producing magnitude 6.5 to 7.5 earthquakes. This fault has historically produced more large earthquakes than any other fault in southern California; however, it has not produced any particularly great or damaging quakes in recent history.

Elsinore Fault Zone
The Elsinore Fault system is located approximately 30 miles southwest of the City of La Quinta. It is more than 140 miles in length and is capable of generating Magnitude 6.5 to 7.5 earthquakes. Although the Elsinore fault zone is one of the largest faults in southern California, it has historically been one of the least active.



Unit Descriptions

Sand Dune Deposits (Qsd):
Wind-blown sand is very common in the area, and mapped throughout the northern portion of the city. The northern portion of the city surrounding Highway 111 is underlain by an active embryonic dune area. Engineering issues in areas mapped as Qs include wind-blown sand erosion and collapsible soils.

Quaternary Alluvium (Qal):
The alluvium is primarily distributed at the mouths of drainages debouching from the Santa Rosa Mountains to the south. These deposits may have been rapidly laid down without being saturated. As a result, the major engineering issue affecting this unit is collapse potential upon introduction of irrigation (hydroconsolidation).

Interbedded Quaternary Lake and Alluvial Deposits (Ql/Qal):
Deposits of ancient Lake Cahuilla and other large lakes inter-bedded with alluvial deposits. The deposits are up to 300 feet thick. Due to the saturation of sediments by the ancient lakes, collapse potential is believed to be low. However, the fine-grained lake deposits may be locally moderate to highly expansive.

Quaternary Terrace Deposits (Qt):
Stream terrace deposits are mapped along the valley margin. They consist of thin mantles and patches capping older rocks. These caps are up to a few feet in thickness with large boulders, and a gravel and sand matrix. No major engineering concerns are associated with this unit.

Quaternary Conglomerate (Qc):
Mapped along the valley margins and comprises the bulk of the Indio Hills to the north. Boulders up to 19 feet in diameter are documented. The primary engineering concern is the generation of over-sized materials from this unit during construction. This conglomerate is locally over 2,000 feet thick.

Granite (gr):
Outcrops in steep hills within the south-central and western margins of the city. Commonly called the "Cactus Granite". These rocks are grossly stable, however some precarious boulders and cobbles result in a moderate rockfall hazard for developent within the mountains, as well as to structures adjacent to the steep slopes, such as the Coachella Canal.

EXHIBIT 6.1

GEOLOGIC MAP AND ENGINEERING PROPERTIES OF THE LA QUINTA PLANNING AREA

Map Explanation
- City Limits
- Sphere of Influence
- General Plan Planning Area 1
- General Plan Planning Area 2

Engineering Properties

Geotechnical Constraint Hazard	Physiography/ Lithology	Earth Units Affected
Wind Erosion	Active Blowing Sand And Sand Dunes	Qsd
	Wind Erosion	Qal, Ql, Qt
Ground Failure	All Valley Areas	Qal, Ql, Qsd
Expansive Soils	Fine-grained Sediments with Shrink and Swell Characteristics	Ql
Collapsible Soils	Alluvium and Wind Deposits	Qal, Qsd
Rockfall Hazard	Steep Terrain	gr

bedrock fault, dashed where approximate, dotted where concealed

The geology illustrated herein is based upon regional mapping and should not substitute for site-specific evaluation.

Source: Proctor (1968), and a compilation by Rogers (1965)

Scale: 1:72,000

5000 0 5000 10000 15000

Feet

La Quinta General Plan

TERRA NOVA®
Planning & Research, Inc.

Earth Consultants International

Project #:998108-001
Date: January 9, 2002

EXHIBIT 6.2

NEAR-SOURCE ZONE AND SOIL TYPES 1997 UNIFORM BUILDING CODE

San Andreas Fault Zone (Source Zone)

5 km from San Andreas Fault

10 km from San Andreas Fault

15 km from San Andreas Fault

Sb

Sd

Se

Sb

Sd

Sb

Sd

Sb

Sd

Sb

Se

Se

Sd

Sb

Sd

Sb

Sd

Sb

IV

III

N

W

E

S

Map Explanation

- City Limits
- Sphere of Influence
- General Plan Planning Area 1
- General Plan Planning Area 2

Soil Profile Type	Soil Profile Name/Generic Description	Average Soil Properties for the Upper 100 feet: Shear Wave Velocity (feet/second)	Standard Penetration Test (blows/foot)	Undrained Shear Strength (psf)
Sa	Hard Rock	>5,000		
Sb	Rock	2,500 to 5,000		
Sc	Very dense soil and soft rock	1,200 to 2,500	>50	>2,000
Sd	Stiff soil profile	600 to 1,200	15 to 50	1,000 to 2,000
Se	Soft soil profile	<600	<15	<1,000
Sf	Soil requiring site-specific evaluation			

The soil types illustrated herein are based on regional mapping and should not substitute for site-specific evaluation. This map is intended to be used with the 1997 Uniform Building Code, Tables 16-S and 16-T.

Scale: 1:72,000

5000 0 5000 10000 15000

Feet

La Quinta General Plan

TERRA NOVA®
Planning & Research, Inc.

Earth Consultants International

Project #: 998108-001
Date: January 9, 2002

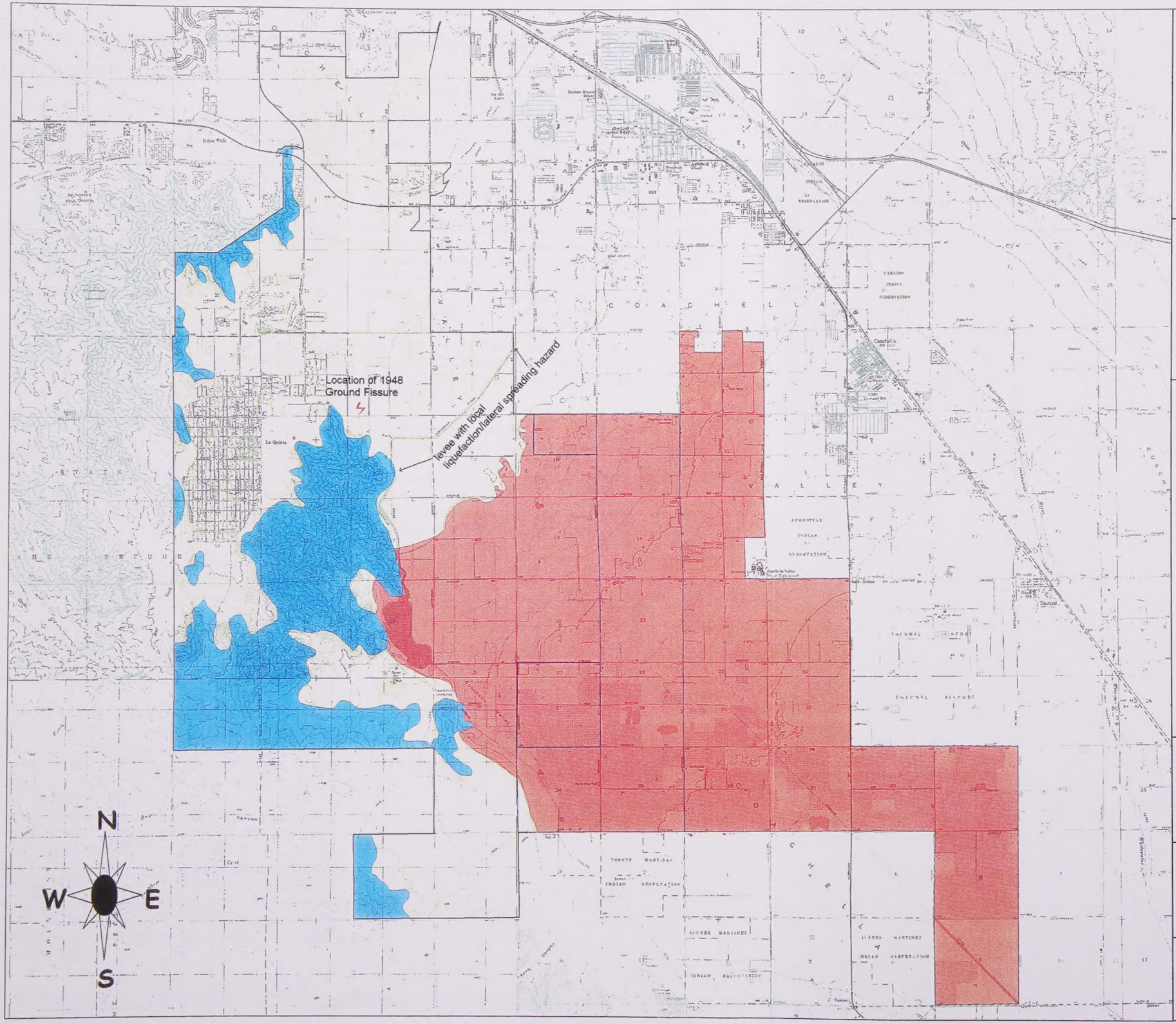


EXHIBIT 6.3

LIQUEFACTION SUSCEPTIBILITY MAP OF THE LA QUINTA PLANNING AREA

Map Explanation

- City Limits
- Sphere of Influence
- General Plan Planning Area 1
- General Plan Planning Area 2

Liquefaction Susceptibility

Liquefaction hazard due to coexistence of young sediments and ground water that may be within 30 feet of the surface.

Potential liquefaction hazard due to the presence of young sediments, however, ground water is generally more than 30 feet below the surface.

Not liquefiable, regions underlain by granitic bedrock.

Scale: 1:72,000

5000 0 5000 10000 15000

Feet

La Quinta General Plan

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Earth Consultants International

Project #: 998108-001
Date: January 9, 2002

oil, gas or ground water from beneath the ground surface.

The effects of ground subsidence are most noticeable in structures which are sensitive to slight changes in elevation, including canals and pipelines. Ground subsidence can also result in the disruption of surface drainage, the formation of ground fissures and damage to wells, buildings and roads. Proper excavation and compaction, in addition to sound foundation design, can alleviate some of the potential for settlement to occur. Much of the planning area is susceptible to seismically induced settlement, as illustrated in Exhibit 6.4.

Seismically Induced Slope Instability
Rock slides and landslides can be expected to occur on steep slopes in the south-central portion of the planning area and western region of the City of La Quinta. Developments at the base of the Santa Rosa and Coral Reef Mountain slopes, where bedrock is intensely fractured or jointed, are particularly vulnerable to seismically induced rockfall. Manufactured slopes may also be subject to failure if not engineered to resist seismic groundshaking. Areas of the planning area that are vulnerable to rockfall and/or landslide are illustrated in Exhibit 6.4.

Adequate building setbacks can provide a protective buffer between development and unstable slopes. The City's Hillside Conservation Zone ordinance limits development in areas with slopes greater than 20 percent, and defines permitted land uses in areas with slopes less than 20 percent. Site-specific geotechnical studies may be required to assess potential risks associated with slope instability.

Seismically Induced Inundation
Enclosed bodies of water, including water tanks, reservoirs, retention basins and swimming pools, are susceptible to failure from seismic events known as seiche. Several above-ground water tanks located within the planning area may be subject to damage in an earthquake, with the potential to inundate structures located downgradient. The likelihood that seiching could damage local retention basins is limited, given the infrequency of stormwater retention that occurs in the region. However, the potential for seismic hazards to occur must be considered in the design and engineering of major retention/detention basins and reservoirs.

6.3.7 Wind Erosion and Blowsand

Due to its unique physiographic characteristics, the Coachella Valley is highly vulnerable to wind erosion. The extreme aridity of the region and the coastal air masses which are funneled through the San Gorgonio Pass create strong winds that pass through the valley, transporting large quantities of sand. The northern portion of the planning area is most susceptible to blowsand transported through the valley. Lands disturbed by agriculture, grading and flooding are also subject to significant erosive forces. The primary source of windblown sand in the planning area is the Coachella Valley Stormwater Channel, particularly after major flooding events, when sandy alluvial deposits are transported through the flood channel. Wind hazard zones in the planning area are shown in Exhibit 6.5.

The effects of blowsand can be highly destructive to structures, automobiles and other property. Blowsand also constitutes a significant health threat associated with the suspension of fine particulate matter (also see Air Quality section of the Natural Resources chapter). Re-vegetation and the installation of windbreaks can reduce some of the impacts of blowsand.

6.3.5 Alquist-Priolo Special Studies Zones

The Alquist-Priolo Special Studies Zones Act was enacted by the state of California in 1972. It is aimed at reducing the potential hazards of fault rupture by prohibiting the location of structures for human occupancy across the trace of an active fault. The Act requires that the state geologist delineate Earthquake Fault Zones along faults which have shown evidence of movement within the last 11,000 years ("sufficiently active") and are clearly detectable by a qualified geologist ("well-defined"). Earthquake Fault Zones are generally located 500 feet from a major active fault, and approximately 200 to 300 feet from a minor active fault. No active faults are known to occur through the planning area.

6.3.6 Seismically Induced Geologic Hazards

In addition to the direct effects of an earthquake, such as ground rupture and ground shaking, the planning area is susceptible to other seismically induced geologic effects, including liquefaction, settlement, slope instability and inundation.

Liquefaction
Liquefaction occurs when seismic waves pass through saturated sandy, silty soils. The granular soil deposits temporarily lose strength, and loosely packed particles collapse, causing soils to behave as liquids rather than solids. Soil deformations and associated damage to structures may occur.

Liquefaction is largely limited to lands containing shallow ground water (within 50 feet of the ground surface) and sandy, silty soils. Modified Mercalli Intensities of VII or higher are believed to be required for liquefaction to occur.

Much of the eastern portion of the planning area contains ground water within 30 feet of the ground surface and is susceptible to liquefaction. Lands in the northern and central portion of the planning area may also be subject to potential liquefaction hazards, however ground water is generally more than 30 feet below the surface in these locations. The Santa Rosa and Coral Reef Mountains and their slopes are not susceptible to liquefaction because they are underlain by granitic bedrock. Areas in the planning area that are susceptible to liquefaction are illustrated in Exhibit 6.3.

Site-specific geotechnical studies are the most reliable method for determining the liquefaction potential of a particular site. The hazards associated with liquefaction can be minimized by restricting or prohibiting construction within susceptible areas. Engineering methods, including soil compaction and replacement of soils, may also be employed to minimize potential risks.

Collapsible and Expansive Soils
Soil collapse occurs when recently deposited sands and silts, or alluvial sediments deposited during flash floods, are saturated and experience a loss of cohesion and cementation. Saturation can result from irrigation or a rise in the groundwater table. The weight of a building or structure can initiate settlement, which can cause foundations and walls to crack.

Alluvial fan deposits transported from the Santa Rosa Mountains, and wind-blown sands deposited in the northern portion of the planning area are susceptible to collapse. Proper drainage and irrigation of structures, lawns and other plantings can prevent saturation of foundation soils, thereby reducing the potential for soils to collapse.

Expansive soils contain significant amounts of clay particles and are subject to shrinking or swelling, depending upon the presence and amount of water in the soil. Excessive swelling and shrinkage can result in distress to buildings and other structures that are constructed on these soils.

The lacustrine (lake) deposits of ancient Lake Cahuilla and other large lakes that once existed in the Coachella Valley contain significant amounts of clay. As a result, expansive soils constitute a potential hazard in areas near Lake Cahuilla. Over-excavation of soils, drainage control devices and the use of reinforced steel in foundations can minimize the risks associated with expansive soils. Excessive watering or drying of soils should be avoided.

Ground Subsidence
Ground subsidence is the gradual settling of the ground surface with little or no horizontal movement. Earthquakes can cause abrupt changes in the elevation of the ground surface, depending upon the intensity and duration of ground shaking and the density of subsurface soils. Ground subsidence is also associated with the extraction of

EXHIBIT 6.4

SEISMICALLY INDUCED SETTLEMENT AND ROCKFALL SUSCEPTIBILITY LA QUINTA PLANNING AREA

Map Explanation

- City Limits
- Sphere of Influence
- General Plan Planning Area 1
- General Plan Planning Area 2

Seismically Induced Settlement and Rockfall Susceptibility

Region vulnerable to seismically induced settlement. Differential settlement is most likely to occur along valley margins.

Region vulnerable to seismically induced rockfalls.

Scale: 1:72,000

5000 0 5000 10000 15000

Feet

La Quinta General Plan

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Project #: 99810-001
Date: January 9, 2002

EXHIBIT 6.5

WIND HAZARD MAP

LA QUINTA PLANNING AREA

Map Explanation

- City Limits
- Sphere of Influence
- General Plan Planning Area 1
- General Plan Planning Area 2

VERY SEVERE WIND EROSION HAZARD- areas exposed to erosive wind where soils show distinct evidence of wind accumulation, and areas exposed to erosive winds where soils highly to extremely erodible by wind have been mapped.

SEVERE WIND EROSION HAZARD- areas exposed to erosive winds where soils showing distinct evidence of wind accumulation have not been mapped, but where soils moderately to highly erodible by wind have been mapped.

MODERATE WIND EROSION HAZARD- areas partially protected from erosive winds and areas where fine-grained soils only slightly erodible by wind have been mapped.

SLIGHT WIND EROSION HAZARD- bedrock areas and areas partially to fully protected from erosive winds where the soils are coarse-grained and show little evidence of soil removal or accumulation.

Boundaries are approximate.

Sources:

Soil Survey of Riverside County, California, Coachella Valley Area, (Knecht, 1980)

Progress Report on the Coachella Valley Wind Erosion Problem (Brocks, 1967)

Scale: 1:72,000

5000 0 5000 10000 15000

Feet

N W E S

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Earth Consultants International

Project #: 998108-001
Date: January 9, 2002

6.4 Flooding and Hydrology

The following analysis is largely based upon the geotechnical and hydrological background report prepared by Earth Consultants International for the La Quinta General Plan Update.[102] A copy of the report is included in the General Plan EIR.

6.4.1 Regional Climate and Flood Hazards

The City of La Quinta and the Coachella Valley enjoy a subtropical desert climate. Mean annual precipitation on the valley floor is very low, ranging from 4 to 6 inches per year. However, due to their great elevations, the surrounding mountains often experience much higher precipitation levels. Rainwater collects and descends rapidly from the steep slopes of the mountains to the valley floor below. Consequently, floodflows typically have high peak volumes and carry large quantities of debris.

Flooding in the Coachella Valley and the La Quinta area can generally be attributed to three types of storms: (1) winter storms in the surrounding mountains, which result in substantial snow melt and runoff, (2) tropical storms from the Pacific Ocean and Gulf of California, and (3) summer thunderstorms. Most rainfall occurs during the cooler months, from November through March. The tendency for regional flooding to occur in winter months reflects the fact that large storms and snow melt often occur during this season.

Historic records reviewed by the Army Corps of Engineers indicate that the greatest storm on record in the Coachella Valley occurred in March 1938. Tropical storm Kathleen, which occurred in September 1976, also generated very heavy rainfall over a three county area, resulting in approximately $15 million in damages in the Coachella Valley.

Flows resulting from heavy storms or mountain runoff can have a significant impact on the valley floor. Although the ground may be generally dry at the beginning of a storm, sufficient amounts and intensities of rainfall can saturate the surface, reducing percolation and increasing runoff. Development also increases runoff by creating large impervious surfaces which reduce the absorption of water.

6.4.2 Federal Flood Insurance Rate Maps

The Federal Emergency Management Agency (FEMA) has mapped potential flood zones in many areas of the United States. The resulting documents are known as Flood Insurance Rate Maps (FIRMs), which serve as the basis for determining the need for federal flood insurance. FIRM maps also assist local governments in providing for safe land use and floodplain development. FEMA maps for the La Quinta area were updated in August 1991. Flood zones designated on the FEMA maps include the following:

A: Areas of 100-year base flood; base flood elevations determined.

ARE: Areas of 100-year base flood; base flood elevations not determined.

AO: Flood depths of 1-3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

X: Areas of 500-year flood; areas of 100 year flood with average depths of less than 1 foot or with drainage areas of less than 1 square mile; and areas protected by levees from 100 year flood

The locations of flood-prone areas, as determined by the 1991 FEMA maps, are illustrated in Exhibit 6.6. The exhibit illustrates areas described as A, ARE, and AO in the FEMA maps.

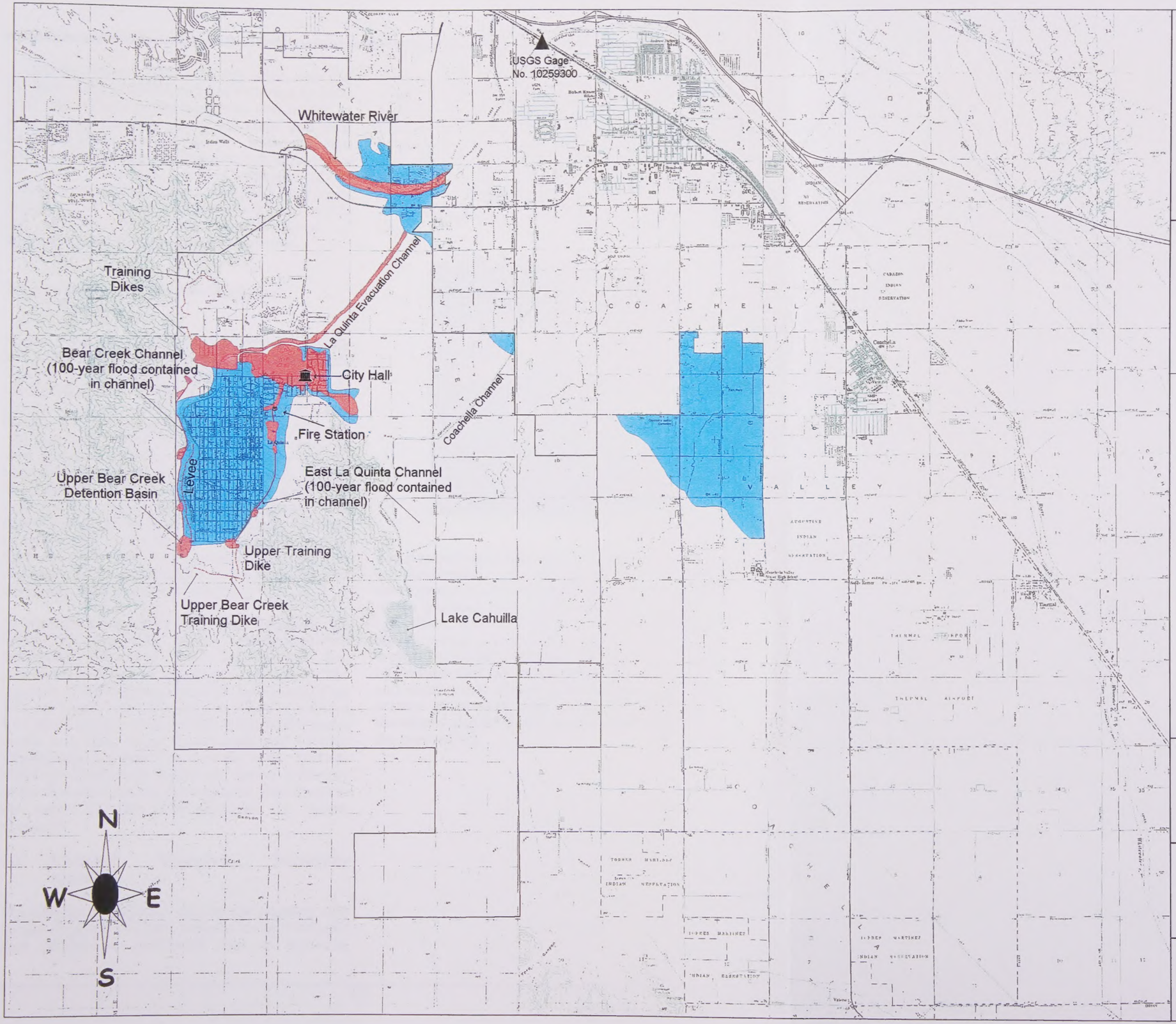

EXHIBIT 6.6

FLOOD HAZARD MAP

LA QUINTA PLANNING AREA

Map Explanation

- City Limits
- Sphere of Influence
- General Plan Planning Area 1
- General Plan Planning Area 2

Flood Hazard

Areas between limits of the 100- and 500-year floods; or certain areas subject to flooding with average depths less than 1-foot, or where the contributing drainage area is less than 1 square mile; or areas protected from the base flood by levees.

500-year flood zone

Mapping based on Federal Emergency Management Agency (FEMA), 1991, Flood Insurance Rate Maps for the City of La Quinta, Community Panels 060709-0005-B, and 060709-0010-B.

Scale: 1:72,000

5000 0 5000 10000 15000

Feet

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Coachella Valley. Within the city limits, one site has been dated to 2300 years and two sites to 1600 years ago. These earlier sites were also related to ancient Lake Cahuilla, which has come and gone numerous times over the last two millennia, each time providing a lush environment rich in resources for Native American lifeways. Because of its unique geographical location straddling the ancient shoreline, the City of La Quinta is located within one of the most dense concentrations of archaeological sites anywhere in California.

7.4 Overview of Known Historical Resources

From 1981 to 1983, the Riverside County Historical Commission coordinated a county-wide historical resources reconnaissance, which led to the recordation of 36 historic buildings or building groups, a historic cemetery, and a historic canal inside or within one mile of the planning area. In 1996 and 1997, the City of La Quinta initiated its own historical resources survey, bringing into the inventory 67 additional properties, mostly historic buildings.[122] Since then, 14 other structures have been recorded during project-related surveys. The oldest among these, a cemetery and the Catholic church on the Torres-Martinez Indian Reservation, date to 1876 and 1894, respectively, but the majority of features recorded in the planning area are of late-1930s or 1940s vintages.

In addition to recording individual buildings, the 1996-1997 city-wide survey recommendation designated the cove area, La Quinta's first residential subdivision, as a historic district.[123] The majority of the buildings listed in the General Plan EIR are found within the district, which is bounded by Calle Tampico on the north, Avenida Bermudas on the east, Calle Tecate on the south, and Avenida Montezuma and Bear Creek on the west. Historic buildings in the cove district are almost uniformly of the Spanish Colonial Revival style, introduced to the region by the 1926 landmark La Quinta Hotel.[124]

7.5 Cultural Resources Sensitivity Analysis

The number of recorded sites in the planning area clearly demonstrates that virtually no undeveloped land should be considered free of historical resources prior to being investigated. Barren, craggy slopes have been shown to contain ancient trails and carved boulders. Rocky alluvial fans host fields of rock cairns associated with big horn sheep hunting. Rolling sand dunes hold evidence of more than two millennia of Indian occupation associated with ancient Lake Cahuilla. And the silty bedded flat lands, now mostly in agriculture, were home to the Cahuilla people and early settlers in more recent times.

The potential sensitivity of agricultural lands cannot be discounted. A proposed 1000-acre land development near Coral Mountain at the south end of the planning area, which was once entirely in agriculture, was the subject of an archaeological survey which reported more than 30 prehistoric archaeological sites, including major concentrations of artifacts marking Indian village sites. Plowing and disking may disturb artifacts, but it does not destroy or remove them, and when fields are abandoned and left to dry, the artifacts reappear on the land surface.

The 100-year flood zone includes those areas subject to inundation that have a one percent (1%) or greater chance of occurring within a given year. As shown in Exhibit 6.6, lands in the vicinity of Eisenhower Drive and Washington Street, south of the La Quinta Evacuation Channel, are located within the 100-year flood plain. This area includes the City Hall building on Calle Tampico and Fire Station #32 at Avenida Bermudas and Frances Hack Lane.

The 100-year flood zone is contained within the La Quinta Evacuation Channel, Bear Creek Channel, East La Quinta Channel and detention basins surrounding the Cove neighborhood. The Coachella Valley Stormwater Channel is also capable of containing 100-year floodflows where it passes through the City north of Highway 111.

Areas located within the 500-year flood zone are those that have a one in 500 chance of occurring during a given year. As illustrated in Exhibit 6.6, the entire Cove neighborhood is contained within the 500-year floodplain, as are lands in the vicinity of Washington Street, south of the La Quinta Evacuation Channel. Lands immediately adjacent to the Coachella Valley Stormwater Channel, east of Adams Street, are also included in the 500-year flood zone. The 500-year flood zone also encompasses land northeast of Jackson and Avenue 54..

In addition to flooding that could occur in the locations described above, FEMA has identified the potential for a major breakout of the Coachella Valley Stormwater Channel during a 100-year storm, at the bend in the Coachella Valley Stormwater Channel between Jefferson Street and Miles Avenue. If such an event were to occur, portions of the cities of Indio and Coachella would likely be inundated. Levee improvements along the stormwater channel have decreased the chance of a breakout occurring.

6.4.3 Drainage Management

The Coachella Valley Water District (CVWD) is responsible for the management of regional drainage within the planning area. District functions include flood control planning and the construction and maintenance of drainage improvements, including the Coachella Valley Stormwater Channel, La Quinta Evacuation Channel and the Bear Creek Channel.

The management of local drainage is the responsibility of the City. The City operates and maintains storm drains, ranging from 18 to 60 inches in diameter, within the rights-of-way of streets in the Cove. Street improvements, consisting of curb and gutter systems and possibly storm drains, are anticipated to be installed in the Downtown Village area within the next two years.[103] Since its incorporation, the City has required that new development construct on-site retention and/or detention basins capable of managing 100-year stormwater flows. Development located immediately adjacent to the Coachella Valley Stormwater Channel has the option of conveying runoff directly into the channel.[104]

Major Flood Control Facilities

The Whitewater River is the principal drainage for the upper Coachella Valley and the planning area. It flows southeast through the City of La Quinta, then flows northeast through the City of Indio, eventually draining into the Salton Sea about 40 miles southeast of the City. The river has a total drainage area of approximately 850 square miles upstream of La Quinta.

East of Point Happy, the Whitewater River is a man-made channel known as the Coachella Valley Stormwater Channel. The Channel is maintained by the Coachella Valley Water District (CVWD). It is designed to contain the standard project flood, which is roughly equal to 82,000 cubic fee per second (cfs), and has one foot of freeboard above the standard project flood water level. The channel is concrete-lined for much of its length through the City of La Quinta, although some segments, particularly those adjacent to undeveloped parcels, remain unlined.

The La Quinta Evacuation Channel extends approximately 3.5 miles in length and conveys runoff from the Oleander Reservoir to the Coachella Valley Stormwater Channel.

The Upper Bear Creek drainage system extends along the southerly and westerly edges of the Cove neighborhood and includes the Upper Bear Creek Training Dike, Bear Creek, Upper Bear Creek Detention Basin, Bear Creek Channel and four side drainage inlets. The system is designed to manage

stormwater from a 100-year flood event. The Upper Bear Creek Training Dike captures 100-year stormwater runoff from a drainage area of approximately 1.7 square miles. As shown in Exhibit 6.6, runoff is conveyed to Bear Creek, then to the Upper Bear Creek Detention Basin, which has a storage capacity of 752 acre-feet. Outflows enter the Bear Creek Channel,which extends approximately 2.5 miles along the westerly edge of the Cove. Stormwater is collected in the Oleander Reservoir and is conveyed to the La Quinta Evacuation Channel, where it is eventually discharged to the Coachella Valley Stormwater Channel.

The East La Quinta Channel is located along the eastern boundary of the Cove neighborhood. It captures runoff from the foothills east of Avenida Bermudas and conveys it, along with small quantities of runoff from the Calle Tecate Detention Basin, to the Avenida Bermudas Detention Basin. During a 100-year storm, runoff is discharged through a 60-inch underground pipe to the La Quinta Evacuation Channel.

6.4.4 Seiche and Seismically Induced Inundation

Seiche is defined as the oscillation of surface water within an enclosed or semi-enclosed basin, such as a lake or reservoir, which occurs in response to strong seismic groundshaking. Within the planning area, Lake Cahuilla has the potential of seiching. Flood control and reservoir facilities that experience seiching could pose a threat to nearby development by failing and inundating developed lands with large volumes of water.

Seismically induced inundation is flooding that occurs when water retention structures, such as above-ground water tanks and reservoirs, fail during an earthquake or are structurally damaged by seismic groundshaking. Tanks must be adequately baffled and braced to prevent damage from sloshing water. Development downgradient from a damaged tank may be inundated as a result of structural failure.

6.4.5 Bridge Scour

As flood flows move rapidly beneath a bridge or railroad crossings, they can erode and remove streambed material from bridge foundations, and transport the material downstream. This process, known as bridge scour, can cause a subsequent loss of support of bridge foundations, and may result in structural damage or collapse of the bridge. Scour can occur within the main channel, on the flood plain, or both.
Six bridge crossings are located throughout the City at the following locations [105]:

- Washington Street at the Coachella Valley Stormwater Channel
- Washington Street at the La Quinta Evacuation Channel
- Eisenhower Drive at the La Quinta Evacuation Channel
- Jefferson Street at the Coachella Canal
- Avenue 50 at the Coachella Canal
- Avenue 52 at the Coachella Canal

The construction of a new bridge at Jefferson Avenue and the Coachella Valley Stormwater Channel is almost complete.

Scouring of highway and railroad bridges may result from flooding, as streambed material is eroded from bridge foundations. Seismic retrofitting of bridges can reduce some of the effects of bridge scour.

6.4.6 Land Use Planning as a Flood Control Strategy

Proper land use planning is one of the most effective methods of controlling flood damage and protecting lives and property in flood-prone areas. Land use planning can restrict the type and location of structures in the vicinity of major drainages. Development within the 100-year floodplain should be severely limited, and the construction of critical community facilities and structures intended for human habitation should be restricted.

Within flood zones that are subject to sheet flows, development approvals should be conditioned to assure protection from flood damage. Conditions may include raising the finished floor level above the projected flood depth and implementing measures to protect against scouring.

Land use planning measures may also require the preservation of natural vegetation in foothills and mountains, which can play an important role in

absorbing runoff and intercepting debris before it reaches downstream facilities.

6.4.7 Stormwater Runoff Pollution Control

Stormwater runoff from developed lands has the potential to contaminate or pollute surface and groundwaters. Runoff from streets, parking lots, building roofs, fertilized golf courses and other landscaped and hardscaped surfaces can also contribute to runoff contamination if not properly managed. The City participates in the National Pollutant Discharge Elimination System (NPDES), which implements the federal Clean Water Act adopted in 1990. The program requires the adoption and implementation of stormwater management plans and programs that reduce the discharge of pollutants from stormwater systems into waters of the United States.

6.5 Noise

The Noise section of the Environmental Hazards Element coordinates the community's various land uses with the existing and future noise environment, and ensures that any negative effects of noise are reduced as development occurs in the City, its Sphere of Influence, and its Planning Area. As development continues, the City will review proposals to assure land use compatibility with the noise environment. This section identifies current (2000) noise problems within the City and its Sphere-of-Influence and determines future noise impacts resulting from buildout of the land use map.

6.5.1 State Requirements

Subsection (f) of the California Government Code Section 65302, which requires that the Noise Element identify and analyze noise problems in the community, establishes the standards for the analysis of noise in General Plans. The implementation of the California Environmental Quality Act (CEQA), Section 21083.1, mandates adherence to the State Guidelines and empowers communities to determine whether or not a proposed project may have a "significant effect on the environment". These significant impacts may range from excessive traffic noise in a residential neighborhood, to industrial manufacturing noise impacting a hospital or convalescent home.

The California Department of Health Services has prepared a Model Community Noise Control Ordinance, which was developed in accordance with Section 46062 of the Health and Safety Code to assist local agencies in the development of model ordinances to control and abate noise. State guidelines require that a community noise control ordinance be adopted, which sets forth control policies and programs that "minimize the exposure of community residents to excessive noise." The City has adopted such an ordinance (see below).

6.5.2 Community Noise Equivalent Level (CNEL)

Concern regarding the potential psychological and physiological impacts of noise has increased significantly in recent years. Excessive noise levels are not only a potential annoyance but can constitute a significant health threat resulting in temporary or permanent hearing loss, and mental distress. The noise environment can also have a profound influence on the quality of life enjoyed by residents and visitors.

Noise is defined as unwanted or undesired sound. Airborne sound is the result of a very rapid change in air pressure from the surrounding "normal" atmospheric pressure. The combination of noise from all sources near and far is the Ambient Noise Level. For purposes of this discussion, the ambient noise level at a given location is termed "environmental noise".

Understanding environmental noise requires some familiarity with the physical description of noise. The important physical characteristics of sound include its frequency range, intensity/loudness and temporal/time-varying aspect. The decibel (dB), A-weighted level, and Community Noise Equivalency Level (CNEL) are all units of measurement used to describe and numerically weight noise.

The decibel is a unit of measurement describing the amplitude or strength of sound. The Community Noise Equivalent Level (CNEL) is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of five decibels to sound levels in the evening from 6 p.m. to 10 p.m, and the addition of 10 decibels to sound levels at night between 10 p.m. and 7 a.m. These

additions are made during these time periods because during the evening and night hours, with the decrease in overall ambient noise, there is an increased sensitivity to sounds. Sounds seem louder and are weighted accordingly. During these evening and night hours the maximum noise levels should be 5 to 10 dBA lower and the CNEL number is weighted to assure this.

6.5.3 Ranges and Effects of Noise

The most common sounds vary between 40 dB (very quiet) and 100 dB (very loud). Conversations at three feet are about 60 dB, while loud engine noise is about 110 dB, which can cause serious discomfort. The logarithmic nature of the sound measuring (decibel) scale results in doubling the sound energy of a noise source only increasing the decibel rating by 3 dB. However, due to the internal mechanism of the human ear, a sound must be nearly 10 dB higher than another sound to be judged twice as loud. In a community such as La Quinta, health, psychological well-being, social cohesion, property values and economic productivity can all be affected by excessive amounts of noise.

Noise can have three types of effect on people: subjective effects, such as annoyance and nuisance; interference with activities such as conversation and sleep; and physiological effects, such as a startle or hearing loss. Adverse reactions to noise generally increase with an increase in the difference between background noise and the noise generated from a particular source such as a barking dog, traffic, aircraft or industrial operations. Loud, short duration noises from barking dogs and low-flying aircraft therefore generally have little impact upon the CNEL noise measurement levels, because of the averaging techniques utilized to define CNEL.

6.5.4 Existing Community Noise Environment

In the City of La Quinta, the primary source of noise, as in most Coachella Valley communities, is motor vehicle traffic. To a lesser but occasionally substantial degree, aircraft traffic also contributes an intrusive element to the noise environment. Other sources of noise include mechanical equipment in commercial land uses, resorts and major institutions.

6.5.5 Motor Vehicle Noise

The principal noise source measured in the City is vehicular traffic, including automobiles, trucks, buses, and motorcycles. The level of noise generated by traffic generally varies according to the number of vehicles, the percentage of trucks, and traffic speed. The tables below show the impacts of traffic and other sources at several locations in the community on local noise environments. The table also presents projected impacts expected from General Plan buildout.

6.5.6 Aircraft Noise

Aircraft noises impacting the Planning Area occur at the Desert Resorts Regional Airport.

Plans to expand the 17-35 runway at the Desert Resorts Regional Airport will have an impact on Planning Area #2.. These plans were studied for the Desert Resorts Regional Airport Environmental Impact Report, and Year 2010 noise contours were developed. These impacts are primarily to the north and south of the runways, in areas planned for industrial development in the Land Use Element. Industrial development is not considered a "sensitive receptor" for noise, and is therefore compatible with airport land uses. Careful planning for the residentially designated lands in this area will be required, so that development is not impacted by the airport noise levels.

6.5.7 Industrial and Commercial Noise

In addition to noise generated by vehicular traffic and aircraft, there are other noise generators within the City, which could create significant noise related conflicts. Industrial operations can create substantial noise problems. Loading and transfer areas, outdoor warehousing operations and other unscreened operations will also raise issues of impact and compatibility.

Another source of potentially significant noise is from the operation of commercial mechanical equipment, including chillers, refrigeration units and heating/air conditioner equipment associated with commercial centers. Noise from roof-mounted equipment can penetrate into adjacent neighborhoods and impact sensitive receptors. The constant hum associated with fans and compressors

can substantially impact outdoor activities and adversely affect the quality of life.

Substantial progress has been made in noise analysis and mitigation through careful equipment design and ever improving baffling and noise cancellation technologies.

6.5.8 Noise and Land Use Compatibility

A CNEL of 65 dBA is typically used in California as a standard for maximum outdoor noise levels in residential areas. The City has in the past enforced a 60 dBA CNEL in residential areas. Although this can potentially result in a significantly quieter environment, as discussed above, the required mitigation measures, including high walls in residential areas, have proven to be an impact on both the aesthetics of the community and the developability of parcels within the City. This General Plan therefore establishes the standards shown in Table 6.1 as those which are enforced. For residential land uses, this results in an acceptable exterior noise level of 65 dBA CNEL. The La Quinta Noise Ordinance (Section 9.100.210 of the Municipal Code) will be modified to reflect this new standard.

A variety of design and technical options are available to substantially reduce noise impacts. The compatibility of different land uses is directly related to the user's sensitivity to noise and the potential for impacts to be mitigated.

Particularly sensitive land uses include residences, schools, libraries, churches, hospitals and nursing homes, and resort areas. In addition, parks, golf courses and other outdoor activity areas can be sensitive to noise disturbances. Less sensitive land uses include commercial and industrial uses, conventional hotels and motels, playgrounds and neighborhood ball parks, and other outdoor spectator sport arenas. Least sensitive to noise are heavy commercial and industrial uses, transportation, communication and utility land uses.

Table 6.1
Community Noise And Land Use Compatibility

Land Uses	CNEL (dBA) 50	55	60	65	70	75	80
Residential Land Uses: Single & Multi-Family Dwellings, Group Quarters, Mobile Homes	A	B		C		D	
Transient Lodging: Hotels & Motels	A		B		C	D	
School Classrooms, Libraries, Churches, Hospitals, Nursing Homes & Convalescent Hospitals	A	B		C		D	
Recreation Land Uses: Golf Courses, Open Space (with walking, bicycling or horseback riding trails, etc.)	A	B	C		D		
Office Building, Personal Business, and Professional Services	A		B		C	D	
Commercial Land Uses: Retail Trade, Movie Theaters, Restaurants, Bars, Entertainment Activities, Services	A		B		C	D	
Heavy Commercial/Industrial: Wholesale, Manufacturing, Utilities, Transportation, Communications	A				C	D	
Auditoriums, Concert Halls, Amphi-theaters, Music Shells (may be sensitive receptors or generators)	B			D			
Sports Arenas, Outdoor Spectacular Sports	B			D			

Source: Federal Highway Program Manual Vol. 7, Ch. 7, Sec. 3, 1982

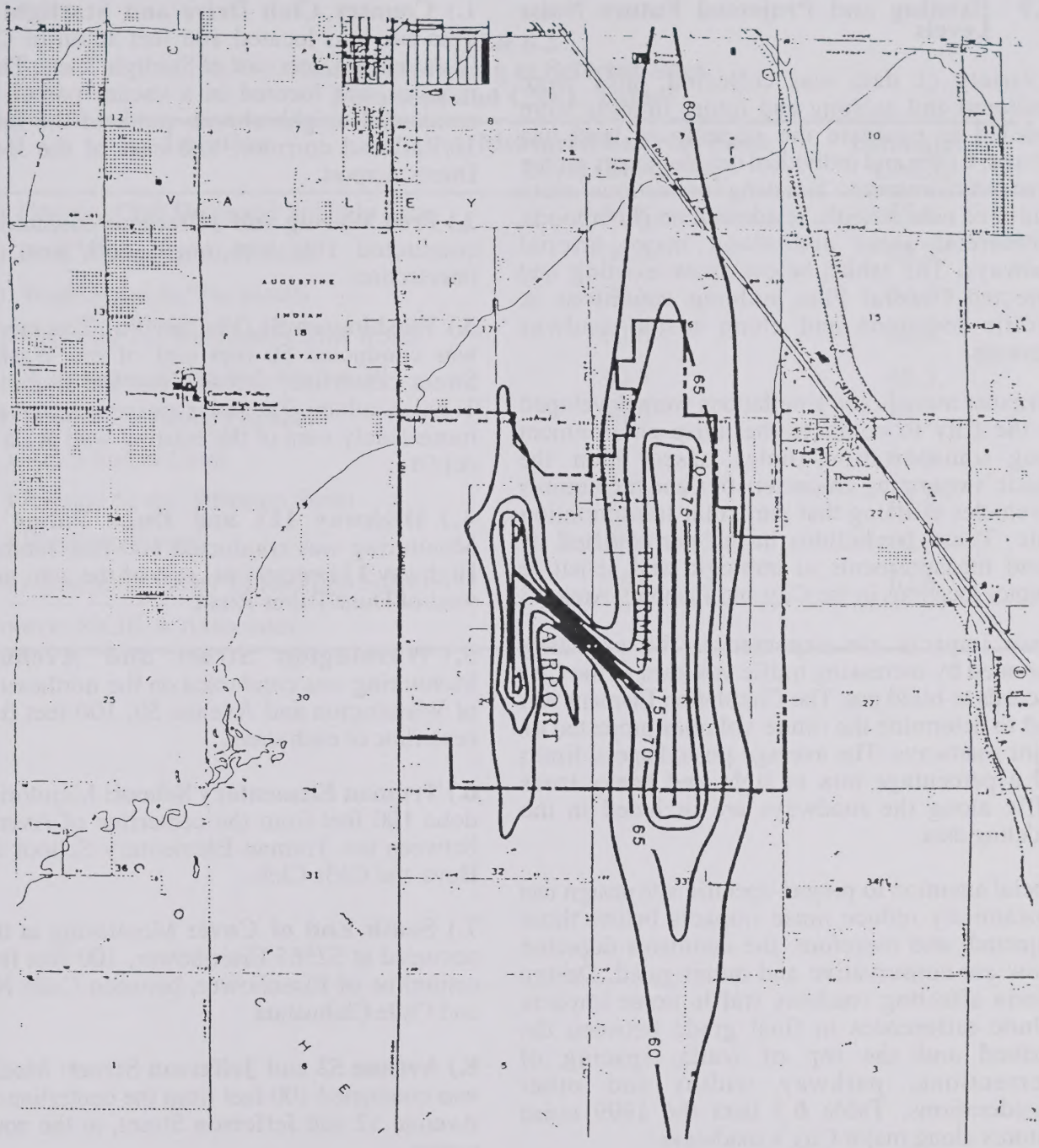
Explanatory Notes

A Normally Acceptable: With no special noise reduction requirements assuming standard construction.

B Conditionally Acceptable: New construction or development should be underaken only after a detailed analysis of the noise reduction requirement is made and needed noise insulation features included in the design.

C Generally Unacceptable: New construction is discouraged. If new construction does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in the design.

D Land Use Discouraged: New construction or development should generally not be undertaken.



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SOURCE: THE RIVERSIDE COUNTY ECONOMIC DEVELOPMENT AGENCY

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City of La Quinta
General Plan
Desert Resorts Regional
Airport Noise Contours

Exhibit

6.7

6.5.9 Existing and Projected Future Noise Levels

A variety of data was collected, sites were monitored and existing and future impacts were modeled to evaluate the impacts of land use patterns, traffic and individual developments on the noise environment. Existing conditions were monitored near schools, residential neighborhoods, commercial areas and along major arterial roadways. The tables below show existing and projected General Plan buildout conditions at specific locations and along major roadway segments.

Computer models and simulations were developed for the City to compute the noise environment along transportation routes based upon the vehicle's operating characteristics and the number of vehicles utilizing that particular transportation route. These predictions have been verified by sound measurements at strategic and sensitive receptor locations in the City and Planning Area.

Noise impacts are expected to be primarily generated by increasing traffic volumes as the City proceeds to build out. The Circulation Element was used to determine the future volumes projected on major roadways. The average posted speed limits and a percentage mix of light and heavy truck traffic along the roadways are included in the modeling data.

Special attention to project-specific site design can substantially reduce noise impacts below those projected, and therefore, the estimates depicted below are conservative and unmitigated. Design criteria affecting roadway traffic noise impacts include differences in final grade between the roadbed and the top of walls, spacing of intersections, parkway widths and other considerations. Table 6.3 lists the 1999 noise contours along major City's roadways.

General Plan Monitoring Sites
Measurements were taken at ten locations with the updating of the General Plan. Sites included major transportation corridors, land use transition areas, sensitive receptors and residential neighborhoods. Monitoring was conducted during the daytime hours, in July and September of 1999. Each of the sites monitored is briefly described below.

1.) Country Club Drive and Starlight Lane: This site was located 100 feet south of Country Club, and 100 feet east of Starlight Lane. The noise monitor was located in a vacant parcel, near a residential neighborhood, south of the Interstate 10/Railroad corridor, and east of the Bermuda Dunes Airport.

2.) Fred Waring and Jefferson: Monitoring was conducted 100 feet north and west of the intersection.

3.) Washington St./Via Sevilla: This monitoring was conducted 50 feet east of the Washington Street centerline, across from the Indian Wells Tennis Stadium. The noise measurement was taken immediately west of the existing wall at La Quinta del Oro.

4.) Highway 111 and Dune Palms Road: Monitoring was conducted 100 feet south of the Highway 111 centerline, east of the auto mall and west of Dune Palms Road.

5.) Washington Street and Avenue 50: Monitoring was conducted on the northeast corner of Washington and Avenue 50, 100 feet from the centerline of each street.

6.) Truman Elementary School: Monitoring was done 100 feet from the centerline of Avenue 50, between the Truman Elementary School and the Boys and Girls Club.

7.) South End of Cove: Monitoring at this site occurred at 52565 Eisenhower, 100 feet from the centerline of Eisenhower, between Calle Nogales and Calle Chihuahua.

8.) Avenue 52 and Jefferson Street: Monitoring was conducted 100 feet from the centerline of both Avenue 52 and Jefferson Street, at the southeast corner.

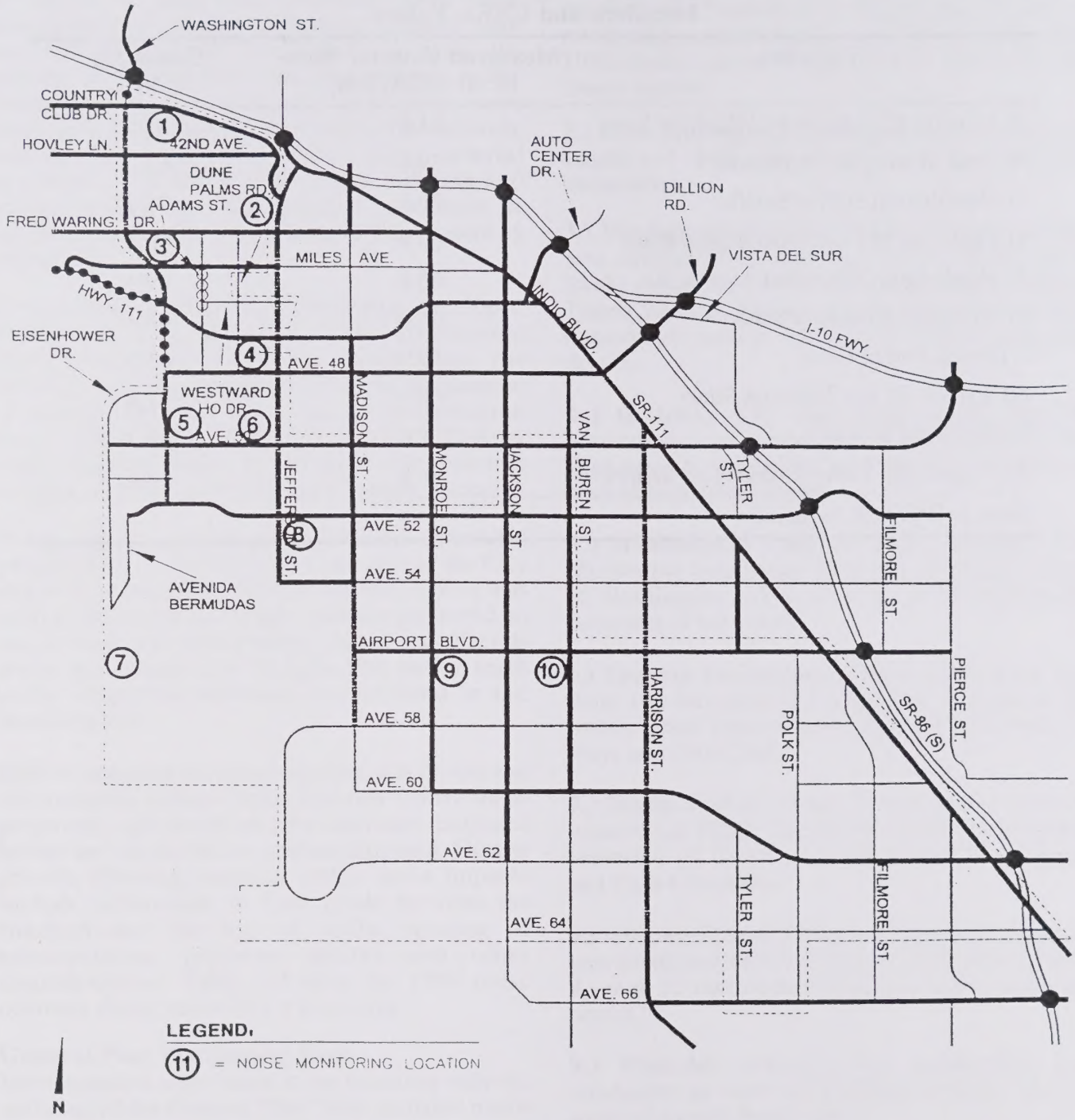
9.) Westside School: This monitoring was conducted in front of Westside School, 50 feet south of Airport Boulevard.

10.) Coachella Valley Union High School: This monitoring was conducted across the street from the High School, 50 feet from the centerline of Airport Boulevard near Van Buren.

Table 6.2
Noise Monitoring at Selected Sites
Locations and CNEL Values

Location	Measured Exterior Noise Level (dBA, Leq)	Estimated CNEL
1). Country Club Drive and Starlight Lane	61.8	65.5
2). Fred Waring and Jefferson	59.6	63.3
3). Washington St./Via Sevilla	70.5	74.2
4). Highway 111 and Dune Palms Road	62.8	66.5
5). Washington Street and Avenue 50	65.8	69.3
6). Truman Elementary School	64.9	68.4
7.) South End of Cove	57.9	61.3
8.) Avenue 52 and Jefferson Street	63.9	67.4
9.) Westside School	58.6	62.3
10.) Coachella Valley Union High School	58.8	62.5

Source: RKJK & Associates



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City of La Quinta
General Plan
Noise Monitoring Sites

Exhibit

6.8

Table 6.3
Existing Exterior Noise Exposure Adjacent to City Roadways

Roadway	A.D.T.[1] (Veh/Day)	CNEL[2]	Distance to Contours (FT) [3]		
			70 dBA	65 dBA	60 dBA
Washington Street					
North of Avenue 42	24,000	67.0	63	135	291
South of Fred Waring Drive	20,500	66.3	56	122	262
South of Highway 111	28,100	69.5	92	199	428
North of Avenue 50	21,700	66.5	59	126	272
North of Avenue 52	17,200	65.5	50	108	283
Jefferson Street					
North of Highway 111	10,800	63.5	37	79	171
South of Avenue 48	11,700	63.8	39	84	180
Madison Street					
North of Avenue 52	500	49.8	5	10	21
Avenue 50					
West of Jefferson	7,800	61.8	28	61	131
East of Jefferson	5,900	60.6	23	51	109
Avenue 52					
West of Jefferson	8,500	62.1	30	64	139
East of Madison	3,700	58.5	17	37	80

Notes:
1. A.D.T. Means current average daily two-way traffic volume.
2. CNEL values are given at 100 feet from roadway centerlines.
3. All distances are measured from centerline.
Source: RKJK & Associates

Future noise impacts to the community are expected to be primarily generated by increasing traffic volumes. From the Circulation Element, we can extract the future volumes projected on major roadways. In order to make the projected traffic noise data more accurate, the average posted speed limits and a percentage mix of light and heavy truck traffic along the roadways are included in the modeling data. This information was supplied through City and CVAG traffic counts, counts prepared for intersection improvement analyses, and for General Plan traffic modeling. Computer modeling was used to estimate noise impacts due to the increased traffic volumes.

It is important to note that special attention to project-specific site design may substantially reduce noise impacts below those projected, and therefore these estimates are considered to be conservative and unmitigated. A wide range of design criteria affecting roadway engineering and traffic noise abatement include differences in final grade between the roadbed and the top of walls, spacing of intersections, parkway widths and other considerations. Table 6.4 lists the projected General Plan buildout noise contours along major City roadways.

Table 6.4
Projected General Plan Buildout Noise Contours Adjacent to City Roadways

Roadway	CNEL[2]	Distance to Contours (FT) [3]		
		70 dBA	65 dBA	60 dBA
Washington Street				
North of Avenue 42	70.4	106	228	491
South of Fred Waring Drive	71.5	126	271	585
South of Highway 111	73.3	165	356	766
North of Avenue 50	70.4	107	230	494
North of Avenue 52	69.0	86	185	399
Jefferson Street				
North of Highway 111	68.4	78	169	364
South of Avenue 48	63.8	39	84	180
Madison Street				
North of Avenue 52	67.3	67	143	309
South of Avenue 54	69.6	94	202	436
Harrison Street				
South of Airport Boulevard	70.5	108	233	501
South of Avenue 60	69.3	90	195	420
SR-111				
South of Avenue 60	66.1	55	119	257
Fred Waring Drive				
West of Jefferson	67.8	71	153	330
Highway 111				
West of Jefferson	70.0	100	216	465
Avenue 48				
West of Jefferson	68.4	78	168	362
Avenue 50				
West of Jefferson	67.2	65	140	302
East of Jefferson	66.4	58	124	267

Table 6.4
Projected General Plan Buildout Noise Contours Adjacent to City Roadways

Roadway	CNEL[2]	Distance to Contours (FT) [3]		
		70 dBA	65 dBA	60 dBA
Avenue 52				
West of Jefferson	68.0	74	159	342
East of Madison	66.9	62	134	290
West of Van Buren	66.2	56	121	260
Airport Boulevard				
East of Madison	65.7	52	111	240
Airport Boulevard				
East of Madison	65.7	52	111	240
West of Van Buren	67.5	68	147	316
West of SR-111	68.4	79	170	365
Avenue 60				
West of Filmore	62.8	33	71	153

Notes:
1. A.D.T. Means current average daily two-way traffic volume.
2. CNEL values are given at 100 feet from roadway centerlines (see General Plan EIR for assumptions).
3. All distances are measured from centerline. R/W means the contour falls within the right-of-way.
Source: RKJK & Associates

7.0 CULTURAL RESOURCES

The City of La Quinta has experienced a colorful history since its inception as a community in the 1920s-1930s, with several distinctive periods and themes in its development. The City's cultural resource history ranges from the early and late prehistoric periods; through the proto-historic period, from 1800 to 1900 A.D.; and through the modern or "resort" period, in the last century.

It is the area's long and significant prehistory, manifested through one of the richest concentrations of archaeological deposits in the State of California, that sets the city apart in the realm of cultural resources management and historic preservation.

7.1 Regional Historic Context

Prehistory
The so-called "prehistoric period" refers to a time prior to the arrival of non-Indians, a time when Native lifeways and traditions resulting from thousands of years of cultural development remained intact and viable, and when Indian people and Indian society ruled the land. In the vicinity of present-day La Quinta, foreign influences brought profound changes to Indian lifeways commencing around the late 1700s, the beginning of the "historic period."

In the Coachella Valley, the prehistoric period is generally divided into the Late Prehistoric, which is currently defined as coming after AD 1000, and the Archaic Period, before that time. AD 1000 marks the introduction of pottery to the region, an innovation undoubtedly from peoples of the Colorado River cultures. Prior to 1000 years ago, pottery was not in use, hence the term "pre-ceramic," which is sometimes used when referring to the Archaic Period. Other important cultural changes in prehistoric times were the introduction of the bow-and-arrow, probably around AD 500, and the change from burial practices to cremations, perhaps around 500 BC. Students of historical linguistics propose a migration of Takic speakers sometime between 1000 BC and AD 500 from the Great Basin region of Nevada, Utah, and eastern California into southern California. It should be noted that the Cahuilla people have their own history, recorded and recited in their Bird Songs, which also include tales of long migrations.
The introduction of pottery is used as the point separating Archaic from Late Prehistoric, although it would also be acceptable to use other significant events in prehistory, for example the introduction of the bow-and-arrow. As work proceeds, in part under the mandate of federal, state, and city historic preservation regulations, the important nodes marking cultural change over past centuries and millennia will become more clearly defined.

Ethnohistory
The Coachella Valley is a historical center of Native American settlement, where a large number of Indian villages and *rancherías*, occupied by the Cahuilla people, were observed in the mid-19th century. The Cahuilla, a Takic-speaking people of hunters and gatherers, are generally divided by anthropologists into three groups, according to their geographic setting: the Pass Cahuilla in the San Gorgonio Pass-Palm Springs area, the Mountain Cahuilla in the San Jacinto and Santa Rosa Mountains and the Cahuilla Valley, and the Desert Cahuilla in the eastern Coachella Valley.

The Cahuilla did not have a single name that referred to an all-inclusive tribal affiliation. Instead, membership was in terms of lineages or clans. Each lineage or clan belonged to one of two main divisions of the people, known as moieties. Members of clans in one division, or moiety, had to marry into clans from the other division. Individual clans had villages, or central places, and territories they called their own, for purposes of hunting game, gathering food, or utilizing other necessary resources. They interacted with other clans through trade, intermarriage, and ceremonies.

Population data prior to European contact are almost impossible to obtain, but estimates range from 3,600 to as high as 10,000 persons. During the 19th century, however, the Cahuilla population was decimated as a result of European diseases, most notably smallpox, for which the Native peoples had no immunity. Today, Native Americans of Desert and Pass Cahuilla heritage are mostly affiliated with one or more of the Indian reservations in the Coachella Valley, including Torres Martinez, Augustine, Agua Caliente, Cabazon, and Morongo, most of which are located

in close proximity to the City of La Quinta. Although only a few elders can remember the old ways or speak the Cahuilla language, there appears to be a revitalization trend among many tribal members.

Early Explorations
An ancient Indian trading route, the Cocomaricopa Trail, ran through the Coachella Valley and connected the coastal region of California to areas along the Colorado River. The trail was first revealed by the Maricopa Indians to the Europeans in 1821, but attracted little attention. Prior to that, the western portion of the trail had been used, since 1815, from time to time by salt miners from the San Gabriel Mission on their way to the Salton Sink. In 1823-1825, José Romero, José Maria Estudillo, and Romualdo Pacheco led an expedition along the same route through the Coachella Valley in search of a road to Yuma, thus becoming the first noted European explorers to travel through the desert around the planning area.

In 1862, in the aftermath of the La Paz gold rush on the Colorado River, the entire route of the Cocomaricopa Trail was "rediscovered" by William David Bradshaw, and became known as the Bradshaw Trail. For the next decade and a half, it served as the main thoroughfare between the Los Angeles area and the gold fields near present-day Ehrenberg, Arizona. By the late 1870s, however, the depletion of the La Paz gold mines and the construction of the Southern Pacific Railroad's Coachella Valley line in 1876-1877 brought an end to the heyday of this historic wagon road. In the early 20th century, with the coming of the automobile age, the role of the Bradshaw Trail was revived in the form of the Ocean-to-Ocean Highway (U.S. Route 60). Today, this role is served by Interstate 10, one of the busiest transportation arteries in the nation, although the course of the old wagon road is followed more closely by State Route 111.

Settlement and Growth
Non-Indian settlement in the Coachella Valley began in the 1870s, with the establishment of railroad stations along the Southern Pacific line, and spread further in the 1880s, after public land was opened for claims under the Homestead Act, the Desert Land Act, and other federal land laws. Farming became the dominant economic activity in the valley, thanks to the development of underground water sources, often in the form of artesian wells.

In the City of La Quinta, the earliest homestead settlement and land development activities did not occur until the turn of the century. In 1926, with the construction of the La Quinta Hotel, the development of La Quinta took on the character of a winter resort, typical of the desert communities along Highway 111. Beginning in the early 1930s, the subdivision of the larger cove area of La Quinta and the marketing of "weekend homes" further emphasized this new direction of development. On May 1, 1982, La Quinta was incorporated as the 19th city in Riverside County.

Agriculture
19th Century travelers observed agricultural activities as early as 1849, when Europeans noted that the native peoples were growing crops near springs and water holes. By 1888, the European settlers were growing grapes, semi-tropical fruits, melons and dates.

With the completion of the Coachella Canal in 1948-1949, farmers in the arid region obtained an adequate and reliable water supply. The main agricultural staple in the Coachella Valley, the date palm, was first introduced around the turn of the century. By the late 1910s, the date palm industry had firmly established itself, giving the region its celebrated image of "the Arabia of America." By 1921, there were three date experiment stations in the Coachella Valley, bringing a better return per acre than any other branch of agriculture.

Starting in the 1920s, a new industry, featuring equestrian camps, resort hotels, and eventually country clubs, gradually spread throughout the Coachella Valley, and since then transformed it into southern California's leading winter retreat.

7.2 Overview of La Quinta History

Five sets of historical maps show the planning area in sufficient detail to aid in cultural resources considerations: township plat maps produced by the U.S. General Land Office (GLO) based on surveys conducted in 1855-1856 and 1903-1912; topographic maps produced by the United States Geological Survey (USGS) based on surveys conducted in 1901; and aerial photographs taken in

1941 and 1951-1956. Depictions of the planning area in these maps are reproduced in Exhibit 7.1.

Native American Land Use

In the mid-1850s, during the earliest GLO surveys of the La Quinta area, surveyors noted a total of eight Indian villages or *rancherías* in or near the planning area. Based on their locations, almost all of these were important settlements of the Desert or Pass Cahuilla people, as identified in current ethnographic literature.[106] One of the most prominent among these settlements was the village of Toro (or Torros, Torres), located in Section 2, T7S R7E, just outside the southern edge of the planning area. Named *Mauulmii* ("Place of the Palm Tree") in the Cahuilla language, the village was the home of the *Tamolanicem* and the *Sawalakiktum* clans, and later became a major stop on the Bradshaw Trail.[107] A second settlement in the planning area, a *ranchería* in Section 19, T6S R8E, was probably associated with the well-known village of La Mesa, home of the *Telkiktum* and the *Sewahilem* clans. [108]

Aside from Toro and La Mesa, Bean et al. (1991)[109], adds a third Cahuilla village within the planning area. Known as *Kotevewit*, the village was reportedly located "about five miles south of Point Happy and a short distance from the present La Quinta Hotel," where the Cahuilla cultural hero *Aswitsei*, "Eagle Flower," lived for many years.[110] Strong (1929), however, describes the location of *Kotevewit* as somewhere "in the mountains."[111]

Just outside the planning area boundaries, six other Cahuilla settlements were noted in the mid-1850s within an approximately one-mile radius. These include the village of *Kavinish* in Section 24, T5S R6E; a *ranchería* in Section 8, T6S R8E, possibly also a part of La Mesa; two *rancherías* in Section 16, T7S R8E, both apparently associated with the village of *Puichekiva* near Martinez; another *ranchería* in Section 25, T6S R8E; and "Cabezon's village" in Section 6, T7S R9E.[112] The last named village, known as *Tuikiktum Hemki*, was one of the four under the leadership of the legendary 19th century Desert Cahuilla chief, Old, Old Cabezon, and may have been his home village.[113]

In addition to these villages and *rancherías*, a number of other manmade features, evidence of Native American activities, were observed within the planning area. These features include a system of roads and trails crisscrossing the desert floor and several wells scattered across the valley, most notable among which was the Palma Seca Well, more commonly known to non-Indians as Indian Well. The principal road ran a generally northwest -southeast course through the planning area between Palma Seca Well and the village of Toro, clearly a part of the historic Cocomaricopa-Bradshaw Trail.[114]

20th Century Development

By the early 20th century, when the La Quinta area was again surveyed systematically by the U.S. government, most of the villages and *rancherías* noted in the mid-1850s had vanished, reflecting the decline of the Cahuilla's population and prosperity during the latter half of the 19th century. Instead, maps from this period begin to show obvious signs of Euroamerican influence, such as fences and irrigation ditches, along with the Bradshaw wagon road and the Southern Pacific Railroad.

In March, 1902, the oldest community in the area was created when H. W. Cottle & Co. filed the plat for a townsite at the Southern Pacific station of Kokell (Gunther 1984:270)[115]. A few months later, the townsite was replatted by Horace Adin Green, the new owner, and renamed Thermal.[116] It was at Thermal that the Southern Pacific drilled the first artesian well in the Coachella Valley,[117] an event that left lasting impacts on the agricultural development of the valley.

As mentioned previously, the first recorded settlement and land development attempts in what is now the City of La Quinta also took place around the turn of the century, when several desert land claims and homestead claims were filed with the GLO on various parcels within the planning area boundary.[118] Although the majority of such early claims ended in failure, during the next few decades the GLO approved and patented 54 land grants to private claimants on properties in present-day La Quinta, including 26 homestead claims, 9 desert land claims, 3 railroad homestead claims, and 16 cash purchases.[119] By the 1910s, several early ranches were in operation in La Quinta, most prominently the Manning Burkett Ranch, the John Marshall Ranch (later known as Hacienda del Gato), and the Point Happy Ranch.[120]

In 1926, La Quinta's growth was steered towards the budding resort industry in the Coachella Valley when Walter H. Morgan and his Desert Development Company began the construction of the La Quinta Hotel. Although this instantly popular and celebrated up-scale hostelry fell into receivership during the Great Depression, other developers, inspired by the success of nearby Palm Springs, continued to pursue and expand Morgan's vision of La Quinta as a resort town to rival its more famous neighbor to the west. In the early 1930s, E. S. "Harry" Kiener subdivided the cove area in Sections 1, 12 and 13, T6S R6E, into residential lots, and began advertising the sale of completely furnished "weekend homes".[121] The subdivision and development of the cove area, in fact, marked the birth of La Quinta as a community.

The 1941 series of USGS maps clearly reflect these developments during the early 20th century. As Figure 4 illustrates, by 1941 the cove area had essentially taken on its present shape. A large number of buildings had been constructed in the cove, clustered predominantly in the northern half of the subdivision, north of today's Calle Chihuahua. Farther to the north, the La Quinta Hotel complex occupied a substantial portion of Section 36, T5S R6E. The rest of the planning area, lying between the cove and the Southern Pacific Railroad, demonstrated a typical rural settlement pattern, with scattered ranch houses connected by roads that were laid out mostly along section or quarter-section lines, the most common property boundaries. Between the early 1940s and the mid-1950s, the number of buildings in the planning area increased significantly, especially in the cove area as La Quinta and the entire Coachella Valley experienced rapid growth during the post-war years. The contrast between the different settlement patterns in the town centers and the outlying rural area persisted, as it still does to some degree to the present day.

7.3 Overview of Known Archaeological Resources

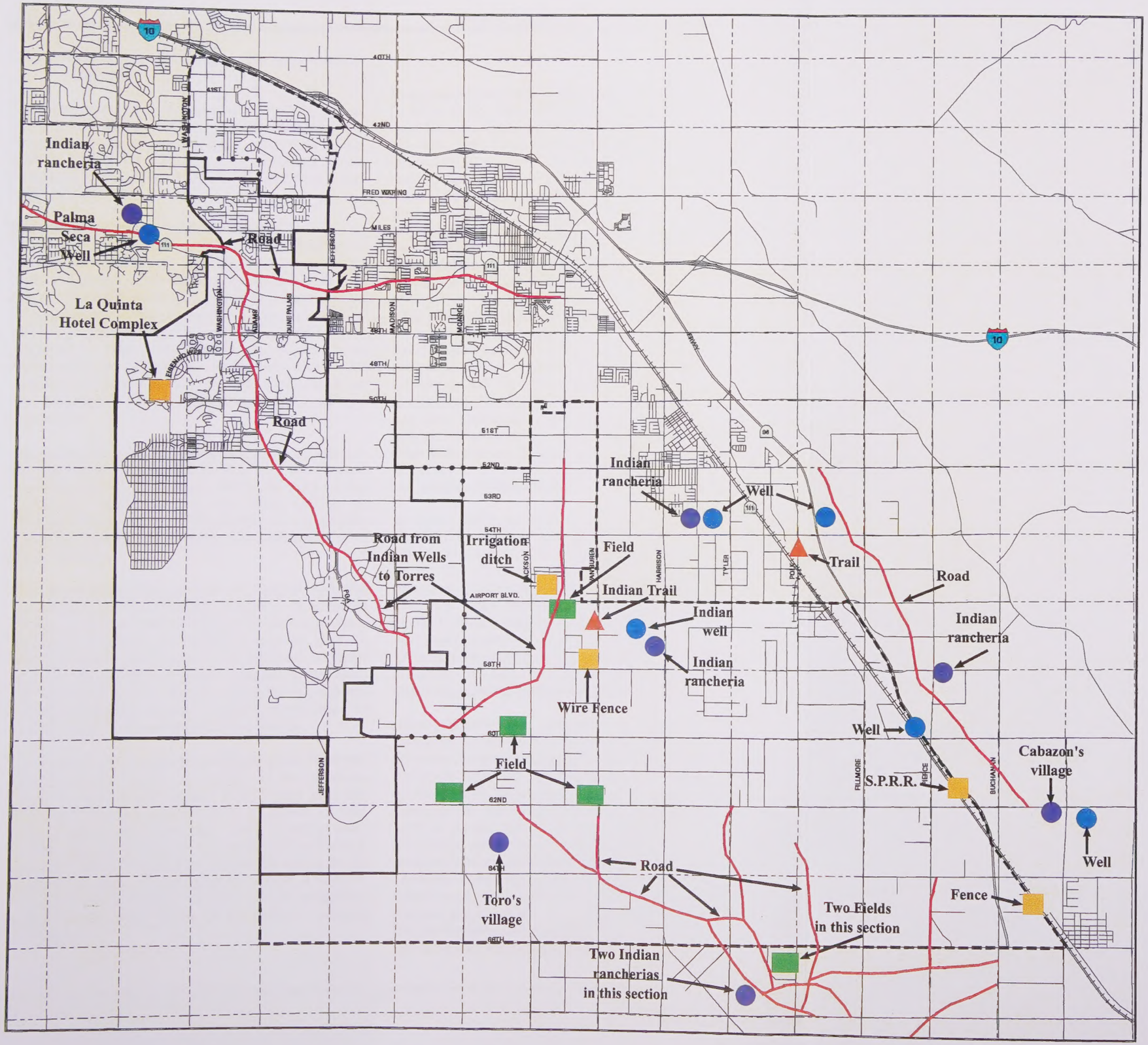
Records on file at the Eastern Information Center indicate that approximately 50-60% of the planning area has been covered by project-related cultural resources surveys since the 1970s. In particular, in the level easterly portion of the city limits, where continuous urbanization has brought about dramatic changes in the landscape during the last few decades, most of the acreage has been surveyed. In comparison, the mountainous southwesterly portion of the city and the portions of the planning area outside the city limits have received only limited attention.

As a result of these earlier surveys, a large number of archaeological sites, both prehistoric and historic, have been identified and recorded in and around the planning area. The General Plan EIR offers a complete list of archaeological sites recorded to date in the planning area and a one-mile radius thereof.

Archaeological sites can represent the remains of past human activities ranging from thousands of years old to as little as 50 years old, encompassing a spectrum of human endeavors from ancient stone tool making to more recent historical date farming. The vast majority of archaeological sites listed in The General Plan EIR includes a listing of Indian settlement associated with ancient Lake Cahuilla, whose shoreline occurred at the 42-foot elevation. All along the 42-foot contour line lie scatters of pottery, burned animal bone, grinding stones, chipped stone, cremations, and other remains of what must have been a very dense population in the 17th and 18th centuries, long before the first non-Indian settlers came to the Coachella Valley. The last high stand of Lake Cahuilla, a naturally occurring freshwater lake formed by overflow from the Colorado River, is now thought to have been around AD 1650, after which the water receded rapidly to reach complete desiccation within 80 to 100 years. As the lake receded, native settlements followed the shoreline onto the lower elevations, in many places leaving archaeological remnants of village sites well below the 42-foot contour, in some cases even below sea level. When the lake disappeared altogether, shallow walk-in water wells were dug to expose the easily accessible water table, allowing communities to continue to survive even after the lake was gone.

While most of La Quinta's archaeological sites date to this late prehistoric period, recent research has discovered sites dating from earlier times, especially in the case of sites buried deep within sand dunes. One site in Indio, just across the La Quinta city boundary near the intersection of Jefferson Street and Fred Waring Drive, has proven to be 2700 years old, the oldest site yet recorded for the entire

City of La Quinta General Plan



LEGEND

- Roads
- Township/Range Sections
- Railroads
- City Limits
- General Plan Planning Area
- City Sphere of Influence

EXHIBIT 7.1
CULTURAL RESOURCES MAP

- Road
- Trail
- Well
- Field
- Rancheria or Village
- Other

Scale
1:90,000

0 6,250 12,500 18,750
Feet

NORTH

Riverside County Vicinity Map

Map Prepared on: July 10, 2000
Map Prepared by: Aerial Information Systems
Map Version No.: 5

TERRA NOVA Planning & Research, Inc

aerial information systems

7.6 Existing Historic Preservation Programs

Since the mid-1960s, federal and state legislation has created a number of opportunities to help local communities preserve their past. The City of La Quinta has taken advantage of some of these programs, while others remain to be established and implemented.

Federal Programs Available to the City
The National Historic Preservation Act (NHPA) of 1966, as amended, mandates that "the heads of all Federal agencies shall assume responsibility for the preservation of historic properties which are owned or controlled by such agency"[125]. Section 106 of NHPA, in particular, requires the heads of federal agencies to take into account the effect of an undertaking on any historic properties prior to the approval of the expenditure of any federal funds on the undertaking or prior to the issuance of any license[126].

Many federal agencies afford an enhanced role for Certified Local Governments (CLG) in the Section 106 process. A CLG since 1995, the City of La Quinta is encouraged by the State Office of Historic Preservation (OHP) to play an active role in the Section 106 process for undertakings within its jurisdiction.

The Secretary of the Interior is charged with the maintenance of the National Register of Historic Places, a nation-wide inventory of districts, sites, buildings, structures, or objects of national, state, or local historical significance. The National Register has also begun to recognize cultural landscapes, such as citrus groves and date gardens, and natural features that have acquired cultural significance in history, such as Point Happy in La Quinta.

At present, two properties are listed in the National Register in the immediate vicinity of the planning area, the Coachella Valley Fish Traps and the Martinez Historic District, both of which lie just outside the southern boundary of the planning area. Numerous archaeological sites within the planning area have been evaluated as eligible for listing in the National Register. In addition to NHPA, a number of other federal statutes also provide for programs aimed at the preservation of the nation's cultural heritage.

Programs Currently Administered by the City
In May, 1991, The City of La Quinta enacted its first Historic Preservation Ordinance (Ordinance No. 238; Title 7, La Quinta Municipal Code), and amended it in 1993 in order to meet OHP requirements for the CLG program. A Historic Preservation Commission was created in 1994. The role of the Commission is "to act in an advisory capacity to the city council and planning commission in all matters relating to the identification, protection, retention, and preservation of historic areas and sites within the city"[127].

Also established under the amended ordinance are a local historical resources inventory and procedures for the designation of landmarks and historic districts, all of which are maintained and/or administered by the Historic Preservation Commission[128]. The historical resources inventory has been established, and encompasses all of the properties listed in the Appendix of the General Plan EIR that are located within La Quinta's city boundaries. The landmark program, however, has not yet been implemented.

In April, 1995, the City of La Quinta became a Certified Local Government, and the city's Historic Preservation Plan was prepared by city staff in 1996. The CLG program, a joint federal-state initiative administered by the National Park Service and the State Historic Preservation Officers (SHPO) of each state, provides technical assistance and small grants for historic preservation purposes to local governments that meet certain requirements. Between 1996 and 1997, the city completed the first city-wide historical resources survey.

Most recently, in response to development pressures in the La Quinta area and the resulting increase in archaeological studies, the city has adopted official guidelines regarding the qualification requirements for archaeological consultants, one of the few municipalities in the state to do so. At the present time, the city has developed programs to implement the transfer of development rights and the application of the State Historic Building Code, but does not have a program of direct subsidies or tax incentives for historic preservation. Nor has the city established the mechanisms to incorporate historic preservation concerns into its zoning ordinance.

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4 Ibid.

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9 Dodie Horvitz, Community Services Director, City of La Quinta, May, 1999.

10 Marilyn Smith, Supervisor, La Quinta Senior Center, May 20, 1999.

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38 Ibid.

39 Dick Macknicki, Imperial Irrigation District, May 24, 1999.

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